Macrolichens of the Northwest Territories

Current Status and Future Research

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The contents of this paper are the sole responsibility of the authors.

Preface

This report was commissioned by Environment and Natural Resources (ENR) to provide the information necessary to rank the general status of macro-lichens in the NWT. The authors provided a database of lichen collections (not in the report) and a set of preliminary conservation ranks. The Working Group on General Status on NWT Species used this information, in addition to information from other sources, to draft general status ranks for macro-lichens in the NWT (WGGSNS 2011). The authors of the report also suggested research priorities on lichens in the NWT. The Government of the Northwest Territories (GNWT) and Management Authorities in the NWT are already working to implement some the suggested recommendations, taking into consideration other priorities and budget requirements.

This report was not modified or edited by GNWT.

Abstract

The Northwest Territories (NWT) supports a rich macrolichen flora consisting of 355 species. Here we report on preliminary herbarium and literature searches conducted in order to determine how many of these species warrant conservation priority. For species known from only a few records, we sought specimen records at four major Canadian lichen herbaria: ALTA (University of Alberta), CANL (Canadian Museum of Natural History), PMAE (Provincial Museum of Alberta, Edmonton), and UBC (University of British Columbia). Based on our findings, we generated initial conservation rankings, with special attention given to presumed vulnerability to climate change and habitat loss. Conservation rankings ranged from S1 (imperilled) to S5 (apparently secure). One hundred and forty species are believed to warrant conservation status in the NWT, with eight species currently ranked as imperilled. The remaining 132 species are in need of further inventory. Several species have apparently been misreported from the NWT, and are recommended for removal from the territorial lichen flora. Macrolichens awaiting publication as new to science were also removed from consideration. Future work on the lichens of the NWT would include preparation of a lichen catalogue and preliminary checklist (including crustose lichens) and field work intended to ground truth our preliminary rankings.

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Introduction

To journey northward from southern Canada to the shores, say, of the Arctic Ocean is to witness a gradual decline in species of trees, shrubs, herbaceous plants, mosses, liverworts, and mushrooms; but not lichens. Lichens alone increase along that same northward journey. Whether as a percentage of total biodiversity, or in terms of sheer visual dominance, lichens become more conspicuous, not less, as one journeys to the unrelenting rigors of the northern landscape.

To date, roughly a thousand lichen species have been documented from boreal and Arctic North America; and while few lichenologists would doubt that many additional species remain to be discovered – and named – it is now becoming clear that "getting the names right" is only a small part of what there is to know about lichens (Appendix III).

This report has two objectives. The first objective is to give a brief overview of what is currently known concerning lichen floristics in the Northwest Territories (NWT), with special emphasis on species considered to be rare or infrequent. The second objective is to summarize what is not known concerning lichen floristics in NWT – but in our opinion should be.

History of Collecting

Apart from a small number of incidental collections by early explorers (e.g., Leighton 1867) lichenology came late to northern Canada. It can be said to date from the opening decades of the 20th century, when concern over "territorial sovereignty" prompted the Canadian government to send a series of northern patrols and expeditions. Often these would be accompanied by scientists who, while not trained as lichen specialists, nevertheless undertook to collect what they saw. Most lichen collections from this period – now on deposit at the Canadian Museum of Nature (Appendix I) – were therefore made by researchers from other disciplines.

With the advent of commercial air transport in the 1940s, scientific activity in northern Canada intensified. Even so, most lichen collections continued to be made by non-lichenologists. Certainly the most prolific collector during this period was wildlife biologist George Scotter, whose studies of caribou took him to many parts of NWT and Nunavut, and whose lichen collections were eventually incorporated into several major floristic studies, including Scotter & Thomson (1966), Thomson et al. (1969), Ahti et al. (1973), and Bird et al. (1980, 1981). Amongst professional lichenologists themselves, important collections have been made by Teuvo Ahti (deposited at H), Charles Bird (PMAE), Alfred Marsh (PMAE), and John Thomson (WIS). Brief histories of lichen collecting in NT and Nunavut are provided by Bird (1975), Bird et al. (1980), and Thomson (1990). Thomson (1984, 1997) also provides dot maps summarizing these early collections.

Current Lichen Research

Beginning around 1990, lichen floristic research in Canada's north entered a quiescent period – from which, indeed, it has still not emerged. A survey of the lichen literature pertaining to NWT and Nunavut from 1990 through 2009 yields only 20 publications – ten of which pertain to the use of lichens as indicators of heavy metal contamination. By contrast, 114 papers have appeared on the lichens of Alaska during the same period, covering a wide range of lichen-related topics. Sample topics include:

(1) the use of lichens by ungulates,

(2) lichens as indicators of past disturbance,

(3) lichens and ecosystem productivity,

(4) lichens and climate change,

(5) fungi that grow on lichens,

(6) lichens and vegetation,

(7) lichen physiology,

(8) lichen ecology, and

(8) lichens and long range atmospheric pollution.

Additionally, scores of species have been newly documented from Alaska since 1990, while 27 Alaskan lichens have been reported as new to science. Greenland has received a similar level of attention by lichenologists, with 130 lichen papers since 1990.

Current Knowledge of Rare Macrolichens

Three hundred and sixty macrolichens have been documented from NWT to date. In Appendix IV, we provide preliminary conservation ranks for all of these species – as well as for a few microlichens recently proposed for consideration by COSEWIC (Björk & Goward, submitted). Ranks were assigned according to the following protocol. First, we reviewed the pertinent lichenological literature (Appendices I and IV). Second, we selected 215 species that, based on their documented occurrence in northern North America, seemed likely to qualify as rare or infrequent in NWT. Third, we conducted searches for these species at the two Canadian herbaria known to house the largest collections of NWT lichens, i.e., CANL and PMAE (Appendix II). Fourth, for 20 species currently under consideration for COSEWIC status, we extended our search to include ALTA and UBC (Appendix II). And fifth, we pooled the resulting information to assign conservation ranks in accord with the ranking system of the Natural Heritage Network (NatureServe 2010).

We examined and recorded collection data for a total of 249 specimens at CANL and 121 at PMAE. No NWT collections of any of the 20 COSEWIC candidate species were on deposit at ALTA or UBC. In total 118 species were judged to be sufficiently rare in NWT to justify preliminary conservation ranks, as follows: S1 = 17 species, S1S2 = 26 species, S1S3 = 53 species, S2 = 0 species, S2S3 =15 species, and S3 = 8 species (Table 1). An additional 29 species were assigned an S2S4 rank, such that further research and field inventory could be expected to result equally in an S2, S3, or S4 rank.

Only one prior attempt has been made to assign conservation ranks to NWT lichens. This was the General Status report recently prepared by Janet Marsh (2010). In fact we made our preliminary results for the present report available for use in the General Status report. In some cases, Marsh elected not to follow our suggestions, while in others our S-rankings have been modified as a result of subsequent herbarium research. Accordingly the conservation ranks given in Appendix IV are not entirely congruent with those assigned by Marsh (2010), also included in Appendix IV.

Table 1: Preliminary conservation ranks (S-ranks) for 148 macrolichens assumed to be rare or infrequent in the Northwest Territories on the basis of literature reports and specimens on deposit at CANL and PMAE. Species in bold are currently under review as candidate species for COSEWIC status reports. See Appendix IV for explanation of S units.

S-rank	Species
S1	***Brigantiaea fuscolutea, Buellia elegans, Cladonia wainioi***, *Collema subparvum,* ***Glypholecia scabra, Gypsoplaca macrophylla****, Heterodermia speciosa,* ***Leptogium arcticum****, L. cf. hibernicum, L. cf. plicatile, Peltigera collina,* ***Physcia tribacia, Pilophorus robustus, Psora tenuifolia, Seirophora aurantiaca****, Seirophora contortuplicatus, Umbilicaria krascheninnikovii, Vestergrenopsis isidiata*
S1S2	*Ahtiana sphaerosporella, Anaptychia crinalis,* ***Lasallia caroliniana****, Lempholemma polyanthes, Leptogium pseudofurfuraceum, Lobaria retigera s. lat., L. scrobiculata, Placynthium pulvinatum, Ramalina almquistii, R. obtusata, R. pollinaria, R. roesleri, Rhizoplaca chrysoleuca, Siphula ceratites, Stereocaulon arenarium, Sticta arctica, Tholurna dissimilis, Tuckermannopsis platyphylla, Umbilicaria angulata, U. cinereorufescens,* ***U. hirsuta****, U. mammulata, U. polyrrhiza, Usnea cavernosa,* ***U. sphacelata, Zahlbrucknerella calcarea***
S1S3	*Allantoparmelia madreporiformis, Arctomia interfixa,* ***Cetraria inermis, C. kamczatica****, C. nigricascens, C. odontella, Cladonia cristatella, C. digitata, C. granulans, C. grayi, C. scabriuscula,* ***C. thomsonii****, Collema bachmannianum, C. ceraniscum, C. crispum, C. furfuraceum var. furfuraceum, C. fuscovirens,* ***C. glebulentum****, C. limosum, C. multipartitum, Dermatocarpon intestiniforme, Fulgensia fulgens,* ***Gowardia arctica****, Lasallia papulosa, Leptogium burnetae, L. gelatinosum, L. tenuissimum, Lobaria linita, Melanelixia fuliginosa, Nephroma bellum, N. helveticum ssp. helveticum, N. helveticum ssp. sipeanum, Pannaria conoplea, Peltigera membranacea, P. praetextata, Phaeophyscia constipata, Placynthium asperellum, Platismatia glauca, Polychidium muscicola, Rhizoplaca melanophthalma, Spilonema revertens, Stereocaulon vesuvianum, Tuckermannopsis chlorophylla, Umbilicaria americana, U. decussata, U. havaasii, U. lyngei, U. phaea, U. virginis, Usnea hirta, Xanthomendoza borealis, Xanthoria polycarpa*
S2S3	*Baeomyces placophyllus, Candelaria concolor, Cetraria fastigiata, Collema polycarpon var. polycarpon, Dibaeis baeomyces, Parmelia skultii, Peltigera neckeri, Ramalina dilacerata, R. intermedia, R. sinensis, Solorina spongiosa, Stereocaulon botryosum, Umbilicaria arctica, U. polyphylla, Xanthoparmelia wyomingica*
S2S4	*Asahinea scholanderi, Bryoria nadvornikiana, Cladonia acuminata, C. decorticata, C. macrophyllodes, C. metacorallifera, C. squamosa, C. subfurcata, C. symphycarpia, Fulgensia bracteata, Fuscopannaria praetermissa, Leptogium lichenoides, L. saturninum, Massalongia carnosa, Melanelia commixta, M. disjuncta, M. sorediata, M. tominii, Melanelixia subaurifera, Melanohalea elegantula, Peltigera lepidophora, P. rufescens, P. venosa, Phaeophyscia sciastra, Physcia dubia, Physconia perisidiosa, Psoroma hypnorum, Solorina bispora, Stereocaulon glareosum*
S3	*Cladonia alaskana, C. ecmocyna, Dermatocarpon miniatum var. complicatum, Lichenomphalia hudsonianum, Peltigera didactyla, P. retifoveata, Physcia phaea, Stereocaulon condensatum*

Table 2: Eighty-five macrolichens reported from the Northwest Territories, but currently of unknown status. Species in bold are currently under review as candidate species for COSEWIC status reports

Rank	Species
SNA (Species reported from NWT, but no vouchers found, or records questionable)	*Alectoria sarmentosa, Arctoparmelia subcentrifuga, Bryoria implexa, B. pikei, B. tenuis, Catolechia wahlenbergii, Cetraria subalpina, Cladonia glauca, C. turgida, Dermatocarpon rivulorum, Endocarpon pulvinatum, E. pusillum, Hypogymnia metaphysodes, H. vittata, Leciophysma finmarkicum, Melanohalea glabrata, Nephroma laevigatum, N. resupinatum,* ***Pannaria hookeri****,* ***Peltigera castanea****, Ramalina fastigiata,* ***Santessoniella arctophila****, Solorina octospora, Stereocaulon coniophyllum,* ***Umbilicaria leiocarpa****, Usnea stuppea, Xanthoparmelia chlorochroa*
SU (Species unrankable due to lack of information)	*Arctomia delicatula, Baeomyces carneus, Bryoria capillaris, B. chalybeiformis, B. furcellata, B. glabra, B. pseudofuscescens, B. trichodes ssp. americana, Cladina arbuscula ssp. arbuscula, Cladonia bacilliformis, C. bellidiflora, C. carneola, C. cervicornis ssp. verticillata, C. cryptochlorophaea, C. gracilis ssp. gracilis, C. gracilis ssp. vulnerata, C. humilis, C. macilenta, C. macroceras, C. maxima, C. merochlorophaea, C. rei, C. subcariosa, C. trassii, C. flaccidum, C. nigrescens, Dermatocarpon luridum, D. miniatum var. miniatum, Ephebe hispidula, E. lanata, Gowardia sp. nov., Leptogium intermedium,* ***L. subtile****, Parmeliella triptophylla, Peltigera extenuata, P. horizontalis, P. occidentalis, P. polydactyla, Phaeophyscia endococcinoides, Physcia stellaris, Physconia americana, P. detersa, Stereocaulon dactylophyllum, S. incrustatum, S. leprocephalum, S. saxatile, S. symphycheilum, Usnea filipendula, U. glabrata, U. glabrescens, U. lapponica, U. subfloridana, U. substerilis, Xanthomendoza fallax, X. fulva, X. ulophyllodes, Xanthoparmelia coloradoensis, X. somloensis.*

Lichen Research Priorities in NWT from 2010 through 2015

In Rare Lichens of Canada, Goward *et al.* (1998) provided preliminary conservation ranks for 15 of the 360 macrolichen species known to occur in the NWT. Based, however, on our literature and herbarium reviews for the present report, it is now clear that much additional field work would be required to provide defensible conservation ranks for a majority of these species. Even greater problems of interpretation attend the species appearing in Table 2. It is also now clear that a great number of NWT lichens on deposit at two of Canada's major herbaria are incorrectly identified. While we have attempted to redetermine as many of these specimens as possible (Appendix IV), many others had to be left unannotated owing to constraints of time and resources. The existence of such a great number of misidentifications calls into question several existing literature reports.

In light of the above observations, we offer five recommendations for future research on rare and infrequent macrolichens in NWT. In principle it should be possible to carry out the following suggestions over a period of about five years.

(1) Preparation of Catalogue and Checklist

Catalogues and checklists are to biology what bookkeeping is to business: a way of keeping track. The General Status exercise recently undertaken for macrolichens might be viewed as a kind of checklist, except that its production was necessarily preliminary. As a first step toward a working knowledge of the conservation status of rare NWT macrolichens, it would be desirable to assemble all available information into a single well organized document, or catalogue. Once this task has been completed, preparation of a lichen checklist for NWT would be easily managed.

RECOMMENDATION: The internet makes possible the rapid dissemination of information. Particularly suited to the internet are databases intended to be continuously updated. Catalogues and checklists certainly belong here. Nowadays it is increasingly common to see catalogues and checklists posted to the internet. A commendable example of an internet-based lichen catalogue – showing the power of this form of publication – is the Revised Catalog of Lichens, Lichenicoles, and Allied Fungi in California by Shirley Tucker and Bruce Ryan (http://ucjeps.berkeley.edu/constancea/84). We propose that a similar product be created for NWT lichens. Besides assuring instantaneous circulation, an on-line catalogue (and check-list) would permit rapid updating as new information becomes available.

(2) Herbarium Research

We have already noted that many macrolichen collections from NWT are currently in need of re-evaluation. Ideally it would be useful to re-examine all existing collections. In practice, however, this would be a daunting task, owing first to the many thousands of specimens involved, and second to the great number of herbaria currently housing the most important collections, many outside of Canada (Appendix III). Actually a review of all existing species, though desirable, is probably not strictly necessary – so long as findings from a smaller subset of these herbaria are amplified by extensive, well designed field studies (see item 3, below).

RECOMMENDATION: In our view it should be possible to achieve a good understanding of NWT lichen floristics through examination of specimens on deposit at four herbaria, i.e., CANL, H, PMAE, and WIS. Here it can be mentioned that our cursory review of lichen material at CANL and PMAE yielded eight species not yet reported from NWT (Björk & Goward, in prep.).

(3) Field Work

On-going studies of lichen distributional ecology in British Columbia make clear that rare lichens are most frequently associated with rare habitats. Rare habitats, in turn, tend not to be randomly distributed, but themselves associate with certain landscape-level attributes. For example: (1) forests subject to exceptionally long environmental continuity; (2) waterfall spray zones; (3) stable talus slopes; (4) localized outcroppings of chemically anomalous rock; (5) areas of extensive calcareous lake sediments associated with deglaciation; (6) habitats surrounding hot springs; (7) areas subject to frequent fog; and (8) regions of unusually low (or high) precipitation.

RECOMMENDATION: Prior to field work, candidate areas for lichen surveys should be stratified against as many of the above attributes as possible, e.g., through the use of GIS. Presumably suited to this approach are such variables as rock type, soils, climate, stand age, proximity to wetlands and rapids, glacial-lake sediments, dunes, waterfalls, etc. In principle, field surveys should be confined – at least to begin – to localities in which two or more of these attributes overlap. Where possible the targeted localities should also be superimposed over either sheltered areas near wetlands, the sea coast, or areas of pronounced topography. In our experience, "multi-layered" localities of this kind have the highest probability of supporting noteworthy lichens.

(4) Taxonomic Work

During the past two decades, Alaska and Greenland have received considerable attention from lichenologists, resulting in numerous new reports as well as species new to science. By contrast, our knowledge of lichen floristics in NWT has changed little during the same period. This should not, however, be taken as evidence that the lichens of NWT are well known. Indeed,

our own herbarium research for this report yielded eight species not previously recorded from NWT (Björk & Goward, in prep). There can be little doubt that many additional lichens await discovery as a result of future field work in specialist habitats of the kind described under Field Work, above.

RECOMMENDATION: In keeping with the efforts of EOL, taxonomists working on the lichens of northern Canada should be encouraged to publish – or to make available for publication – any undescribed or previously unreported species encountered in the course of floristic research. In the case of species new to science, this can often be accomplished through collaboration with researchers working on specific taxonomic groups. Here it can be observed that many remaining undescribed species are likely to be uncommon or even rare throughout their range. As a result, their publication can help call attention to critical habitats in need of conservation.

(5) A Popular Treatment of Northern Lichens?

Lichens are dual organisms, part fungus and part alga: as much organisms as ecosystems (Appendix III). As such, lichens present profound challenges to classification. Few people would claim to "understand" lichens the way they understand, for example, birds or plants. Many popular books have been published on lichens in recent years. Usually their primarily focus is on lichen identification: how to call lichens by their correct names. While this approach certainly constitutes an adequate starting point for a great many taxonomic groups, yet in lichens, for many people, it begs the question "Why bother"? This is a question lichenologists are accustomed to hearing – even from people who would never think of asking it regarding birds, say, or plants. In our view, it is a question whose answer, while yet to be fully formulated, is key to the eventual creation of strong support for lichen research. For people who live at northern latitudes, it is also key to understanding – and appreciating – a significant component of their home territory.

For the past eleven years, Trevor Goward has been preparing a series of guidebooks to the macrolichens of northwest North America (for details, see http://waysofenlichenment.net/). The area covered by Trevor's forthcoming guides includes Alaska, the Yukon, and western NWT east to the Mackenzie River. It would be relatively straightforward to recast portions of this series to a separate work specific to the lichens of northern Canada. It is well known that a great majority of macrolichens at high latitudes have circumpolar distributions. Many northern species also extend southward along the mountain chains of eastern and especially western North America. Thus a book published on the lichens of NWT and Nunavut would be likely to attract attention far beyond northern Canada *per se*. While these observations are admittedly somewhat outside the terms of this report, it nevertheless seems pertinent to present them here for general consideration.

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APPENDIX I

LICHEN FLORISTIC STUDIES ON THE NORTHWEST TERRITORIES

The following bibliography summarizes all major floristic studies published to date on the lichens of the Northwest Territories. Many additional papers have also appeared on other lichen-related topics, but are not included here. A few of the titles given below are based on study areas now partly within Nunavut.

Ahti, T., G.W. Scotter and H. Vänskä. 1973. Lichens of the Reindeer Preserve, Northwest Territories, Canada. The Bryologist 76: 48-76.

Bird, C.D. 1975. The lichen, bryophyte, and vascular plant flora and vegetation of the Landing Lake area, Prince Patrick Island, Arctic Canada. Canadian Journal of Botany 53: 719-744.

Bird, C.D., J.W. Thomson, A.H. Marsh, G.W. Scotter and P.Y. Wong. 1980. Lichens from the area drained by the Peel and Mackenzie rivers, Yukon and Northwest Territories, Canada. I. Macrolichens. Canadian Journal of Botany 58: 1947-1985.

Bird, C.D., J.W. Thomson, A.H. Marsh, G.W. Scotter and P.Y. Wong. 1981. Lichens from the area drained by the Peel and Mackenzie rivers, Yukon and Northwest Territories, Canada. II. Microlichens. Canadian Journal of Botany 58: 1231-1252.

Brown, R. 1819. Botanical Appendix, pages cxxxvii-cxliv *in* John Ross, A voyage of discovery ... for the purpose of exploring Baffin's Bay. London. 252 pages.

Gould, W.A. 1994. Five lichens new to Banks Island, Northwest Territories, Canada. Evansia 11(1): 17-20.

Gould, W.A. 1994. Macrolichens of the Coppermine, Hood, and Thomsen Rivers, Northwest Territories, Canada. The Bryologist 97: 42-46.

Lamb, I.M. 1954. List of lichens. Page 235 *in* S. D. MacDonald (ed.): Report on Biological Investigations at Mould Bay, Prince Patrick Island, N.W.T., in 1952.

Leighton, W. A. 1865: Notes on lichens collected by Sir John Richardson in Arctic America. Journal of the Linnaean Society. IX Botany: 184-200.

Scotter, G.W. and J.W. Thomson. 1966. Lichens of the Thelon River and Kaminuriak Lake regions, Northwest Territories, Canada. The Bryologist 72: 137-177.

Thieret, J.W. 1961. A collection of plants from the Horn Plateau, District of Mackenzie, Northwest Territories. - Canadian Field-Naturalist 75: 77-83.

Thieret, J.W. 1963. Botanical survey along the Yellowknife Highway, Northwest Territories, Canada. I. Catalog of the flora. Sida [Dallas] 1: 117-170.

Thomson, J.W. 1984. American Arctic Lichens. 1. The Macrolichens. Columbia University Press, New York, New York. 504 pages.

Thomson, J.W. 1990. Lichens in the Canadian arctic islands. Pages 385-420 *in* C.R. Harington (ed.). Canada's missing dimension: science and history in the Canadian arctic islands. Volume I. Canadian Museum of Nature, Ottawa.

Thomson, J.W. 1997. American Arctic Lichens. 2. The Microlichens. University of Wisconsin Press, Madison. 655 pages.

Thomson, J.W. and G.W. Scotter. 1992. Lichens of the Cape Parry and Melville Hills regions, Northwest Territories. Canadian Field-Naturalist 106: 105-111.

Thomson, J.W. and G.W. Scotter. 1995. Some lichens from Melville, Bathurst, and Moore islands in the Canadian arctic archipelago. Evansia 12: 117-120.

Thomson, J.W., G.W. Scotter and T. Ahti. 1969. Lichens of the Great Slave Lake region, Northwest Territories, Canada. The Bryologist 72: 137-177.

APPENDIX II

IMPORTANT LICHEN COLLECTIONS FROM NORTHERN CANADA

The most comprehensive collections of lichens from northern Canada are housed at the Canadian Museum of Nature (CANL) and the University of Wisconsin (WIS). Somewhat smaller collections are located at Harvard University (FH), the University of Alberta (ALTA), the Provincial Museum of Alberta (PMAE) and the University of Helsinki (H). Additional collections are on deposit in other herbaria, included below:

ALTA
Herbarium, Department of Biological Sciences, University of Alberta, Edmonton, Alberta T6G 2E9

CANL
Collection Division, Natural Herbarium of Canada, Canadian Museum of Nature, P.O. Box 3443, Station 'D', Ottawa, Ontario K1P 6P4

FH
Farlow Herbarium and Herbarium of Cryptogamic Botany, Harvard University, 20 Divinity Avenue, Cambridge, Massachusetts, U.S.A. 02138

H
Botanical Museum (Mycology), University of Helsinki, P.O. Box 47, FIN-00014 University of Helsinki, Finland

PMAE
Provincial Museum of Alberta, 12845 - 102 Avenue, Edmonton, Alberta T5N 0M6

TRTC
Cryptogamic Herbarium, Department of Botany, University of Toronto, 25 Willcocks Street, Toronto, Ontario M5S 3B2

UBC
Herbarium, Department of Botany, University of British Columbia, Vancouver, British Columbia V6T 1Z4

US

United States National Herbarium, Botany Department, NHB-166, Smithsonian Institution, Washington, DC 20560-0001

WIS

Herbarium, University of Wisconsin, 245 Birge Hall, 430 Lincoln Drive, Madison, Wisconsin 53706

APPENDIX III

FACE IN THE MIRROR: INTRODUCTION TO A "NEW KIND" OF LICHENOLOGY

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"*Lichens are fungi that have discovered agriculture.*"

I remember it well, that sunny autumn afternoon down in the canyon, about an hour from home. I had been resting awhile under an old pine tree on an open grassy hillside and, happening to look up, I noticed a brilliant yellow clump of *Vulpicida canadensis* clinging to a dead branch just overhead. Lichenological sunshine.

Who can say why certain questions come to visit when they do? I know I can't. What I *can* say is that the existence of this particular lichen on this particular branch somehow struck me as deeply enigmatic. A lichen, after all, is part fungus and part alga, the first a denizen of the dark, the second a citizen of the moist. And yet here they both were, a fungus and an alga, hanging out in lichen guise on a sun-bathed pine branch on one of the driest slopes in the Clearwater Valley. And not just making do, mind you, but positively *thriving* – as witness all those big brown apothecia staring back at me. What kind of relationship between a fungus and an alga could possibly make such a thing possible?

This wasn't the first time I had found myself asking questions of this kind. My best says-I-to-myself response to date was that a lichen must be a kind of fungal greenhouse, say an "elegant culture chamber for photobiont cells", as Rosmarie Honegger was later to put it. And yet I'm bound to admit I was never quite satisfied by this way of putting the matter. Two reasons, I suppose. First because it seemed to give all the initiative to the fungus, none to the alga. And second because it seemed to imply a kind of genial environmental stability quite out of touch

with the wild microclimatic fluctuations that constitute the basic operating environment of most lichens – and that seem to be required for their establishment in the first place.

So anyhow there I was, nested on that particular grassy slope on that particular afternoon in late September, staring up at that particular lichen thallus: *Vulpicida canadensis*. The only sound, I recall, was the sound of rushing water from somewhere below. Then suddenly it came to me, suddenly I had it, satisfactorily for the moment, and more or less problematically ever since. Suddenly I "knew" that what I was looking at, the secret fraternity within the thallus, the thing staring me in the face, could really only be one thing: a fungal farm. Lichens were fungi that had discovered agriculture.

That was in 1990. A few years later, in 1992, I floated my little epiphany in the popular field guide, *Plants of Coastal B.C.* Nothing. In 1993 I published it again, then in 1994 yet again – this time in slightly expanded form in an article for *Nature Canada*. Still nothing. Only in the late 90s did the lichens-as-fungal-agriculture analogy finally begin to take off – thanks largely to its inclusion in the much-visited Lichens.com website created by Sylvia and Steve Sharnoff for their *Lichens of North America* project with Ernie Brodo. From there it found its way, in 2001, into Vernon Ahmadjian's fascinating paper, "*Trebouxia*: reflections on a perplexing and controversial lichen photobiont," as well as into William Sanders' classic piece on lichens as fungal "plants". Nowadays one notices it popping up all over – both within lichenology and outside of it, as for example in Don MacKay's collection of essays on nature poetry, *Vis-à-Vis*, and in Richard Dawkins' masterwork, *The Ancestor's Tale*.

All this would be gratifying in the extreme, except for one small detail. I no longer see the world – and lichens in particular – quite the way I did back in the early 90s. Nowadays I doubt if anybody would catch me describing lichens as fungi that have discovered agriculture. To be

clear, it's not that I no longer think lichens are basically fungal farms – I find it hard to think of them any other way – rather it's that I no longer think of lichens as fungi. Fungal, yes. But fungi? I think not.

Forgive me, but here I need to introduce a certain age-worn analogy about a chocolate cake. (If you passed Philosophy 101, please go directly to the next paragraph). A chocolate cake, of course, is made up of certain ingredients in certain proportions: two eggs, a cup of flour, a half cup of milk, four tablespoons of cocoa, and so forth. But few of us, if asked to imagine a chocolate cake, would conjure up a thought bubble consisting, for example, of two eggs, a cup of flour, a half a cup of milk, and four tablespoons cocoa. What would come to mind instead would surely be the full meal deal: a cake. My point here is that our tendency to think cake rather than ingredients is strictly speaking neither right nor wrong: it's simply a matter of emphasis, a question of perspective. In the case of a chocolate cake, age-worn tradition – enshrined in fact in our language – inclines us to emphasize the whole rather than the parts. In a certain very limited sense one might almost say that what we're focussing on here is emergent property: something that not only arises from its parts, but is somehow something *other* than the sum of its parts. Now try thinking fruit cake instead.

This brings me to the sixty thousand dollar question: Why do lichenologists find it so exceedingly difficult – impossible might be more like it – to provide a good, clear, watertight definition of the word "lichen"? (The most intuitively satisfying definition to come across my desk to date is that lichens are whatever gets studied by lichenologists). Many would argue it is simply because lichens, far from being a taxonomic group, the way mosses are, or mammals, are

in fact an ecological one: a dietary strategy, say, on the part of certain fungi for certain algae and/or cyanobacteria.

Point taken. And yet surely the trouble with lichen runs a little deeper than that. For my money, it at least partly resolves to the interesting fact that lichens, being dual "organisms," occupy an intermediate position along the continuum of integration that separates organism from ecosystem. On this subject I'll have more to say in a future essay; but for now let me simply call attention to the no less interesting fact that eukaryotic organisms are likewise ecosystems, or at any rate ecosystemic – every mitochondrion, say, being a genome within a genome – and as such necessarily occupy a place along the same continuum. But of course with this difference: that whereas the composite nature of most macroscopic life lies buried deep within the cell, in lichens it lies just below the surface, for any and all to see.

The sheer conceptual beauty of the lichen enterprise – also its challenge to human perception – seems to me to reside in the kaleidoscopic ease with which it lends itself to being thought about from multiple perspectives: lichen as dietary strategy of certain fungi; lichen as range extender for photocells; lichen as controlled parasitism; lichen as mutualism; lichen as fungal agriculture; lichen as fungal greenhouse; lichen as gall; lichen as culture chamber; lichen as symbiotic phenotype; lichen as organism; lichen as ecosystem; lichen as emergent property. It was Ludwig Wittgenstein, I believe, who first famously called attention to the arresting incapacity of the human mind to entertain two perspectives simultaneously – as witness, for example, his drawing of the duck-rabbit. Toggle back and forth as often or as rapidly as we will, the result is always the same: what comes into focus for us is duck *or* rabbit, never both together. True, the perceptual difficulties posed by the lichen consortium tend to be more conceptual than visual, yet I do think the duck-rabbit drawing illustrates what I take to be a curious, yet perhaps

defining feature of the human condition: our unself-conscious propensity for emphasizing the single perspective over the many possible ones: a cornerstone, surely, of all human cultural identity.

Researchers working nowadays within reductionist traditions are naturally inclined to contemplate the lichen consortium largely in terms of its component parts, whether fungus or alga or cyanobacterium. And granted it's not hard to justify our current majority emphasis on the lichen fungus – at the expense, notice, not only of the photopartner, but more particularly of the lichen as a whole. Still we would do well to consider the possibility that we have been predisposed to this emphasis at least in part by a seemingly tacit assumption that having majority status in terms of biomass confers upon the lichen fungus majority status in terms of function. Yet is it really true to say that a lichen is just a fungus? Consider this: that were the lichen consortium more fully integrated, more fully organismic in its inner presentation, we would surely be much more inclined to give at least equal weight to its emergent existence as a composite organism. As a cake, that is, and not merely the flour, eggs, milk and so forth that went into its making.

It is sometimes said – with good reason, I think – that definitions can reveal as much about those who posit them as they do about the things being defined. Next time you pause to contemplate a lichen, consider the strong likelihood that whatever it is you see staring back at you – fungus, alga, thallus, parasitism, mutualism, agriculture, gall, growth chamber, or farmstead – in some way reflects the particular mindset you bring to it; that what you're looking at is really a face in the mirror; and that the face in the mirror is very much your own.

APPENDIX IV:

PROPOSED MACROLICHEN CONSERVATION RANKS FOR THE NORTHWEST TERRITORIES

Background Notes

Ranking

Rank = Subnational rank (abbreviated as S-rank). S-ranks are assigned for territories, provinces and states throughout North America. For any given jurisdiction, these ranks are based primarily on the rarity of each species, but also take into account geographic range, habitat specificity, threats, and any known trends in population size. The resulting ranks are on a scale of 1 to 5, as follows: 1 = critically imperiled, 2 = imperiled, 3 = vulnerable, 4 = apparently secure, 5 = secure. The additional categories SNA and SU represent, respectively, species thought to be misreported, or for which information is insufficient to assign a rank.

Notes = Supplementary remarks supporting the S-rank, and suggesting further actions.

Taxon = The name of the species, plus any subspecies or variety.

Herbarium Records

PMAE = Herbarium, Provincial Museum of Alberta, Edmonton.

Count = Number of specimen citations from PMAE.

CANL = Herbarium, Canadian Museum of Nature, Aylmer, Quebec.

Count = Number of specimen citations from CANL.

NOTE: Collection information has been incorporated in full, as it appears on the label.

NOTE: When possible, misidentifications are corrected to the best of our ability. However, final determination will in many cases require more careful work than we were able to give during our short herbarium visits.

Literature Records

Literature records appear in four columns: (1) Thomson et al. (1969), (2) Ahti et al. (1973), (3) Thomson (1984), and (4) additional literature records. Many of the publications cited in Column 4 are tied to the references in Appendix I. In the case, however, of taxonomic studies, the citation can be tracked via the Lichen Literature Index (http://www.nhm.uio.no/botanisk/lav/RLL/RLL.HTM).

General Status

Marsh GS = General Status as applied by Janet Marsh (2010)

Comments on GS = Suggested modifications to Marsh GSEXTRA TEXT:

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S2	Inventory needed	*Ahtiana sphaerosporella*	No specimens	0
S5		*Alectoria ochroleuca*	Not studied	N/A
SNA		*Alectoria sarmentosa*	Not studied	N/A
S1S3	Inventory needed	*Allantoparmelia almquistii*	No specimens	0
S3S5	Probably underreported	*Allantoparmelia alpicola*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Ahti 32770, 11 July 1977, Mackenzie Mountains, Nahanni National Park, Tlogotsho Plateau, 1350 m elev., 61deg 08'N 124deg 33'W, mountain valley with a lake and scattered stunted conifer scrub (orohemiarctic zone), on *Abies lasiocarpa* (only on 3 m tall tree!), rather scarce;	1					3	Should be 2
Not studied	N/A	6	3	45	2 (Thomson & Scotter 1983)	4	
Not studied	N/A					4	Likely present, but not seen
R. Rosie 214, 10 October 1977, Howards Pass, 62deg 27'N 129deg 12'W, loosely attached to rocks on outcrop above treeline, 1540 m elev.; Thomson 16458, 19 June 1984, Richardson Mountains, Canoe Lake, on rocks on the hill east of the lake, 68deg 12'N 135deg 54'W	2			2	1 (Esslinger 1977)	3	Should be 2
Not studied	N/A	2		9	2 (Esslinger 1977)	4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Inventory needed	*Allocetraria madreporiformis*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 30265, 24 July 1979, Princess Royal Island, 72deg 46'N 118deg 05'W, 40 m elev.; Scotter 30184 and 30173-D-A, 22 July 1979, Banks Island, near Mercy Bay, 10-15 m elev., 73deg 59'N 119deg 02'W, Dryas - Draba community type; M. Kuc s.n. 25 July 1970, Banks Island, Cape Kellett, 72deg 00'N 126deg 45'W; SW Banks Island, Masik River, 30 km from coast, 71deg 36'N 123deg 00'W, dry tundra; D. Thannheiser 65 and 156, 1973, Banks Island, Sachs Harbour; D. Thannheiser 297, 1973, Victoria Island, Holman Island; T. Hutchinson 39, August 1975, Cape Parry, in area 100 m, on the NE shore of Baleana Bay; Scotter 18463, 12 July 1972, Banks Island, Sachs Harbour, 71deg 59'N 125deg 16'W, Dryas hillsides and lowland community types, 100-200 ft. elev.;	7			4	1 (Thomson & Scotter 1983)	4	Should be 2

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S2	Inventory needed	*Anaptychia crinalis*	C.D. Bird & A.H. Marsh 27372, 65 mi WNW of Norman Wells, Sans Sault Rapids, 65deg 40'N, 128deg 50'W, elev 213 ft, site 42, stunted *Picea glauca* woods, on *Picea glauca* , 7 June 1971; A.H. Marsh 3929, Fort Simpson, island at mouth of Liard River, 61deg 49'N, 121deg 16'30"W, elev 425 ft., *Picea glauca - Populus balsamifera* stand with Alnus understory. On *Picea glauca* , 6 June 1972;	2
SU	Possibly overlooked, specimens should be checked	*Arctomia delicatula*	No specimens	0
S1S3	Inventory needed	*Arctomia interfixa*	No specimens	0
S5		*Arctoparmelia centrifuga*	Not studied	N/A
S3S5		*Arctoparmelia incurva*	Not studied	N/A
S4S5		*Arctoparmelia separata*	Not studied	N/A
SNA	No reliable records known	*Arctoparmelia subcentrifuga*	No specimens	0
S3S5		*Asahinea chrysantha*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 1-26423 and 1-26441, 15 July 1980, Cape Parry, near Pin Main Dewline Station, polar semi-desert and seepage areas, 70deg 11'N 124deg 42'W, 0-75 m elev.; (NU?: D.M. Wood s.n., 23-28 July 1975, Victoria Island); Scotter s.n., 15 July 1978, Cape Parry area, polar semi-desert and seepage areas near Pin Main Dewline station, 70deg 11'N 124deg 42'W, 0-75 m elev.; S.S. Talbot 3718, July 1972, Heart Lake area, *ca.* 0.7 mi NE of Mile 81, Mackenzie Hwy, 60deg 51'N 116deg 37'W, escarpment, dry calcareous sandstone;	3 or 4			3	1 (Esslinger 2007)	4	Should be 2
None	0			3	(1, Determination uncertain, Thomson & Scotter 1983)	Not assessed	
None	0	1		4	(1, Determination uncertain, Thomson & Scotter 1983)	Not assessed	Should be 2
Not studied	N/A	13		35		4	
Not studied	N/A	3	1	10		4	
Not studied	N/A	8	1	27		4	
None	0					3	Should be 5
Not studied	N/A			13	2 (Thomson & Scotter 1983)	4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S2S4	Inventory needed	*Asahinea scholanderi*	Not studied	N/A
SU	Specimens should be reviewed, inventory needed	*Baeomyces carneus*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1988[1]	*Ahti et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Not studied	N/A	2		13	3 (Thomson & Scotter 1983)	4	Should be 3
Scotter 6000, 2 August 1965, T-41, Reindeer Station, 68deg 36'N 134deg 03'W, det. Ahti; Scotter 2445, 5 August 1962, 150 year old black spruce type stand, south Whirlpool Lake, 61deg 05'N 109deg 15'W; Scotter 2325, 17 July 1962, North Taltson River, 61deg 50'N 109deg 10'W; Scotter 1618, 9 July 1961, 26 year old birch forest, W. Desperation Lake, 62deg 35'N 112deg 15'W, S. - 51 - 55; A.H. Marsh 3270, 26 August 1972, Mackenzie Delta, 3 miles NNW of Inuvik, 68deg 23'N 132deg 45'W, 50 feet elev, sparce *Picea mariana*, age 65, and *Betula papyrifera* over Alnus and *Betula glandulosa*, Sphagnum/Erica mounds 70%, mineral soil 15%, *Carex tussocks* 15%; Scotter 2362, 22 July 1962, on ground, North Taltson River, 61deg 50'N 109deg 10'W	6		4	13	3 (Thomson & Scotter 1983)	5	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S2S3	Inventory needed	*Baeomyces placophyllus*	No specimens	0
S4S5		*Baeomyces rufus*	Not studied	N/A
S3S5	Probably underreported	*Brodoa oroarctica*	Not studied	N/A
S5		*Bryocaulon divergens*	Not studied	N/A
SU	Specimen should be checked for species concept	*Bryoria capillaris*	No specimens	0
SU	Specimens should be reviewed for species concept	*Bryoria chalybeiformis*	No specimens	0

CANL	Number CANL	Thomson *et al*. 1989[1]	*Ahti et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 1589, 8 July 1961, Desperation Lake, 62deg 35'N 112deg 15'W; Scotter 2326, North Tattson River, 109deg 10', 109deg 10'W, 61deg 50'N; Scotter 1692, 14 July 1961, west of unnamed lake, stand 71-75, 62deg 55'N 111deg 55'W; Scotter 2437, 1 August 1962, on ground, mature black spruce type stand, Whirlpool Lake, 109deg 15'N 61deg 05'W; Scotter 1726, 15 July 1961, mature spruce forest east of unnamed lake, stand 66-70, 62deg 55'N 111deg 55'W; Scotter 2414, 26 July 1962, fourty-seven year old black spruce type stand, east Hjalmer Lake, 109deg 25'W, 61deg 35'N	6			4	1 (Thomson & Scotter 1983)	4	Should be 3
Not studied	N/A		1	10		4	
Not studied	N/A			6		4	
Not studied	N/A	9	5	38	25 (Kaemefelt 1986)	4	
A.E. Porsild s.n., 7-11 June 1928, Great Bear Lake, foot of Dease Arm, near the mouth of Dease River, 66deg 53'N 118deg 36'W;	1			1	1 (Brodo & Hawksworth 1977)	4	Should be 5
Not studied	N/A	1		15	11 (Brodo & Hawksorth 1977); 1 (Thomson & Scotter 1983)	5	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Common shortly to the south in Alberta	*Bryoria furcellata*	No specimens	0
S4S5		*Bryoria fuscescens*	Not studied	N/A
SU	Specimens should be reviewed for species concept	*Bryoria glabra*	No specimens	0
SNA	No evidence known to support its listing for NWT	*Bryoria implexa*	No specimens	0
S5		*Bryoria lanestris*	Not studied	N/A
S2S4	Inventory needed	*Bryoria nadvornikiana*	Not studied	N/A
S3S5		*Bryoria nitidula*	Not studied	N/A
SNA	Not likely present, a Pacific warm-coastal species	*Bryoria pikei*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
A.E. Porsild s.n., 7-11 June 1928, Great Bear Lake, foot of Dease Arm, near the mouth of Dease River, 66deg 53'N 118deg 36'W; two other records as (subs);	1	1			2 (Brodo & Hawksworth 1977)	4	Should be 5
Not studied	N/A			23	9 (Brodo & Hawksworth 1977)	4	
Not studied	N/A	17	4	5		4	Should be 5
None	0					4	Should be 6
Not studied	N/A		11	33	29 (Brodo & Hawksworth 1977)	4	
Not studied	N/A	1		5	3 (Brodo & Hawksworth 1977)	4	Should be 3
Not studied	N/A	4	8	32	19 (Brodo & Hawksworth); 2 (Thomson & Scotter 1983)	4	
None	0					Not assessed	Should be 6

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Possibly not present; specimen should be checked for species concept	*Bryoria pseudofuscescens*	No specimens	0
S4S5		*Bryoria simplicior*	Not studied	N/A
SNA	Specimen should be checked for species concept	*Bryoria tenuis*	No specimens	0
SU	Specimens should be checked for species concept	*Bryoria trichodes ssp americana*	No specimens	0
S2S3	No specimens known, but to be expected and probably not rare in the SW river valleys	*Candelaria concolor sensu lato*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0				0 (but close in Nunavut, Brodo & Hawksworth 1977)	4	Should be 5, possibly misapplied
Not studied	N/A	3	5	30	22 (Brodo & Hawksworth 1977)	4	
None	0	1			0 (but close in Nunavut, Brodo & Hawksworth 1977)	3	Should be 5
Not studied	N/A	3		2		4	Should be 5
Scotter 21465, 1 June 1974, Island in Nonacho Lake, 61deg 44'N 109deg 40'W, 1100 ft. elev., spruce-pine forest, on bark; Scotter 1542, 22 June 1961, southeast end of Hearne Lake, 62deg 20'N 113deg 08'W; Scotter 1566, 24 June 1961, Blachford Lake, 62deg 12'N 113deg 30'W; Scotter 2328, 17 July 1962, North Taltson River, 61deg 50'N 109deg 10'W [NOTE: all the above-cited specimens are the mounded western form, not typical, but fits under *Candelaria concolor sensu lato*]	4					4	Should be 3

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SNA	No evidence, but likely present	*Catolechia wahlenbergii*	No specimens	0
S3S5		*Cetraria andrejevii*	Not studied	N/A
S3S5		*Cetraria delisei*	Not studied	N/A
S4S5		*Cetraria ericetorum ssp. reticulata*	Not studied	N/A
S2S3	Inventory needed	*Cetraria fastigiata*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0				? (Thomson 1999, citing Hooker 1823, Coppermine River area)	Not assessed	Should be 6
Not studied	N/A	6		16		4	
Not studied	N/A	3	1	20		4	
Not studied	N/A	7	1	26		4	
Scotter 2286, 4 July 1962, Rudledge Lake, 61deg 35'N 110deg 45'W, det. Kaernefelt; W.J. Cody 16038, 9 August 1966, "BB" Lake, 3 mi SE of Indian Mountain Lake, 63deg 02'N 110deg 57'W, black spruce muskeg, det. Kaernefelt; S.A. Edlund s.n., 26 July 1985, site 221, Melville Island, 76deg 09'30"N 113deg 19'W, det P.Y. Wong; S.A. Edlund s.n., 17 July 1985, Melville Island, 75deg 35'30"N 115deg 23'W, N side of Purchase Bay, on delta, on soil between sandstone cobbles, site 180A; M. Kuc s.n., 13-16 June 1968, Melville Island, vicinity of eastern ice cap, at head of Purchase Bay, *ca.* 75deg 45'N 115deg 00'W, 120-200 m elev., dry tundra, LA-12, det. Kaernefelt; C.D. Bird 32827, 25	7			9		4	Should be 3

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Inventory needed	*Cetraria inermis*	No specimens	0

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
June 1973, Melville Island, Apollo Drilling Rig, 75deg 33'N 11deg 57'W, elev., 800 ft., rock (sandstone) barrens, *Luzula confusa - Rhacomitrium lanuginosum - Saxifraga oppositifolia* community, site 73-3, cover 1%, on soil, det. Kaernefelt; M. Kuc s.n., 2-7 July 1968, Southern Eglinton Island, 75deg 45'N 118deg 30'W, tundra, det. Kaenefelt							
Scotter 5869, 28 July 1965, District of Mackenzie, S-17, Reindeer Station, 68deg 35'N 134deg 00'W	1			2		Not assessed	Should be 2

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S3S4	Specimens should be checked for species concept, but to be expected in the far SW	*Cetraria islandica ssp crispiformis*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
A.A. Lindsey 462, 27 July 1951, Great Bear Lake, Norrie Bay, next bay north of Hunter Bay, det. Kaernefelt; R. Sims 8617B, 31 July 1981, Site 81-107, 37km E of Tuktoyaktuk on the Tuktoyaktuk Peninsula, 69deg 30'50"N, 132deg 02'00"W, low shrub thicket with dense *Salix spp*, Betula cover on W-facing slope; A.H. Marsh 2185, 26 July 1972, Fort McPherson, near Satah River, 67deg 04'N 134deg 32'W, 250 feet elev., open stagnant *Picea mariana*, age 150, with scattered *Larix laricina*, Cladina 70%, Sphagnum mounds 30%, Alectoria dense on *Picea mariana*, det. Kaernefelt; A.H. Marsh 1055, 13 June 1972, Wrigley, McConnell Lake well site, 62deg 49'20"N 122deg 52'30"W, 1400 ft. elev., dense *Picea mariana* with scattered *Populus balsamifera* and *Betula papyrifera*, ground cover 50% lichens, 50% feather mosses, det. Kaernefelt; W.J. Cody, 16756, 27 July 1967, Mackenzie	10					4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S5		*Cetraria islandica ssp islandica*	Not studied	N/A
S1S3	Inventory needed	*Cetraria kamczatica*	No specimens	0
S5		*Cetraria laevigata*	Not studied	N/A
S3S4		*Cetraria nigricans*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Mountains, 5 miles SE O'Grady Lake, 62deg 57'N 128deg 58'W, 5000-6000 ft. elev., det. Kaemefelt; Thomson 11040 and 11068, 9-16 July 1962, Great Slave Lake, temporary pool, top of ridge, E side of lake, vicinity of Fort Reliance, 62deg 45'N 106deg 35'W, both det. Kaemefelt; Thomson 11046, 9-16 July 1962, Great Slave Lake, ridge W. of bay, SE. of Reliance, det. Kaemefelt; Thomson 15646, 19 June 1964, Richardson Mountains, Canoe Lake, 68deg 12'N 135deg 54'W, in stand of bog birch, det. Kaemefelt; Scotter 2345, 21 July 1962, 120 year old black spruce stand, North Taltson River, 61deg 50'N 10[illegible] 10'W, det. Kaemefelt; Scotter 2565, 15 August 1962, Thekulthili Lake, 61deg 12'N 110deg 00'W, black spruce stand, det. Kaemefelt								
Not studied	N/A	7	3	(*sensu lato*: 30)		4	
None	0			1		3	Should be 2
Not studied	N/A	2	12	44		4	
Not studied	N/A	4		14		4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Inventory needed	*Cetraria nigricascens*	No specimens	0
S1S3	Specimen should be checked for species concept	*Cetraria odontella*	No specimens	0
S4S5		*Cetraria sepincola*	Not studied	N/A
SNA	Possible in SW corner	*Cetraria subalpina*	No specimens	0
SU	Specimens should be reviewed for species concept	*Cladina arbuscula ssp arbuscula*	No specimens	0
S5		*Cladina arbuscula ssp beringiana*	Not studied	N/A
S5		*Cladina mitis*	Not studied	N/A
S5		*Cladina rangiferina*	Not studied	N/A
S5		*Cladina stellaris*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1988[1]	Ahti *et al.* 1972[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 4042, 28 June 1964, Thelon River, 64deg 10'N 102deg 34'W, det. Kaernefelt; Scotter 5693, 16 July 1965, T-19, Anderson River, 69deg 20'N 128deg 13'W, det. Kaernefelt; Scotter 5577, 11 July 1965, S-8, east side of Anderson River, 69deg 21'N 128deg 13'W; Scotter 5629, 14 July 1965, east of Anderson River, 69deg 20'N 128deg 15'W, det. Kaernefelt	4	1	1	8		4	Should be 3
Ahti 14986, 17 August 1961, Lower Ross Lake, 62deg 40'N 113deg 15'W, on open rock outcrop in woods, det. Kaernefelt; Scotter 3802, 19 August 1961, Ross Lake, 62deg 42'N 113deg 15'W, det. Kaernefelt; A.A. Lindsey, 2, June 1951, Yellowknife, det. Kaernefelt	3				1 (Kaernefelt 1986)	3	Should be 2
Not studied	N/A	4	3	21		4	
None	0					6	
Not studied	N/A	2	11			5	
Not studied	N/A	3	2	35		4	
Not studied	N/A	20	8	60		4	
Not studied	N/A	18	8	72		4	
Not studied	N/A		3	63		5	Should be 4

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S3S5	Probably common	*Cladina stygia*	Not studied	N/A
S2S4	Inventory needed	*Cladonia acuminata*	Not studied	N/A
S3	Inventory needed	*Cladonia alaskana*	Scotter 5886, 30 July 1965, T-35, Reindeer Station 68deg 42'N, 134deg 10'W, dupl det. Ahti; Scotter 5813, 12 July 1965, T-12, east side of Anderson River, 69deg 17'N 128deg 16'W, dupl det. Ahti; Scotter 5888, 30 july, 1965, T-35, Reindeer Station, 68deg 42'N 134deg 10'W, dupl det Ahti; Scotter 5958, 31 July 1965, T-38, Reindeer Station, 68deg 48'N 134deg 24'W, dupl det. Ahti; (label only: Scotter 3813, 19 August 1961, Ross Lake, 62deg 42'N 113deg 15'W; Scotter 8249, 18 July 1966, S-48, Peter lake, 68deg 47'N 134deg 09'W, dwarf birch-cottongrass community, duplicate det. Ahti; Scotter 5976, T - 40, Reindeer Station, 68deg 44'N, 134deg 12'W, 1 August 1965, dupl det. Ahti; Ahti 14426, 16 August, 1961, MacKenzie District, lower Ross Lake, 62deg 40'N 113deg 15'W, on rock outcrop with old *Pinus banksiana* woodland	8

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Not studied	N/A	13			11 (Ahti & Hyvonen 1985)	4	
Not studied	N/A	4	3	16		5	Should be 3
Ahti 14426, 18 August 1961, Lower Ross Lake, 62deg 40'N 113deg 15'W, on rock outcrop with old *Pinus banksiana* woodland; Thomson 11019, 9-18 July 1962, Great Slave Lake, vicinity of Fort Reliance 62deg 45'N 106deg 35'W, moist cliff, Beacon Hill, det. Evans; Scotter 5957, 31 July 1965, Reindeer Station, 68deg 48'N 134deg 24'W, det. Ahti; A.A. Lindsey 463, 27 July 1951, Great Bear Lake, Norrie Bay, next bay north of Hunter Bay, det. Evans; Scotter 5958, T-38, Reindeer Station, 68deg 48'N 134deg 24'W, 31 July 1965, det. Ahti; T-40, Reindeer Station, 68deg 44'N 134deg 12'W, 1 August 1965, det. Ahti; Scotter 5831, 27 July 1965, T-32, Reindeer Station, 68deg 40'N 134deg 05'W, det. Ahti; Scotter 5888, 30 July 1965, T-35, Reindeer Station, 68deg 42'N 134deg 10'W, det. Ahti; Scotter 8376, 20 July 1966, S-53, Ya Ya Lake, 69deg 10'N 134deg 38'W, bare hilltops and dry dwarf birch-willow slopes, det. Ahti;	13	5	5	10	1 (Thomson & Scotter 1983)	3	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S5		*Cladonia amaurocraea*	Not studied	N/A
SU	The few records are widespread, possibly underreported	*Cladonia bacilliformis*	No specimens	0

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 8249, 18 July 1966, S-48, Peter Lake, 68deg 47'N 134deg 09'W, dwarf birch-cottongrass community, det. Ahti; Scotter 8251, 18 July 1966, S-48, Peter Lake, 68deg 47'N 134deg 09'W, dwarf birch-cottongrass community, det. Ahti; Scotter 5891, 30 July 1965, T-35, Reindeer Station, 68deg 42'N 134deg 10'W, det. Ahti; Scotter 3813, 19 August 1961, Ross Lake, 62deg 42'N 113deg 15'W, det. Thomson; Scotter 6004, 2 August 1965, T-41, Reindeer Station, 68deg 36'N 134deg 03'W, det. Ahti;							
Not studied	N/A	25	19	71		4	
Ahti 14640, 19 August 1961, Lower Ross Lake, 62deg 40'N 113deg 15'W, on rotten log on open rock outcrop; Scotter 3805, 19 August 1961, middle of Ross Lake, 62deg 42'N 113deg 15'W, det. Thomson; Thomson 15505, 15 June 1964, Reindeer Station, in bog birch on top of ridge;	3	4	1	7		5	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Probably overlooked, the few records are widespread across boreal forests in the territory	*Cladonia bellidiflora*	No specimens	0
S3S5	Probably underreported	*Cladonia borealis*	Not studied	N/A
S3S5		*Cladonia botrytes*	Not studied	N/A
S4S5		*Cladonia cariosa*	Not studied	N/A
SU	Probably underreported	*Cladonia carneola*	No specimens	0
S5		*Cladonia cenotea*	Not studied	N/A
SU	Specimens should be reviewed	*Cladonia cervicornis subsp. verticillata*	Numerous specimens from NWT at PMAE, some look incorrect, should be annotated, but cervicornis probably not rare	numerous

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0	1	1	6		5	
W.J. Cody, 17305, 2 August 1967, Mackenzie Mountains, June Lake, 3700 ft. elev., 63deg 31'N 128deg 40'W, wet moss among open Salix by lake shore, det. S. Stenroos; W.J. Cody 2362, 2 July 1949, Yellowknife - airstrip, 62deg 27'N 114deg 22'W, common in peaty area, det. Stenroos; W.J. Cody 18713, 9 July 1970, unnamed lake southeast of Cartridge Hills, 63deg 52'N 120deg 05'W, open *Picea mariana* forest, det. Stenroos; many others...	Numerous				10 (Stenroos 1989a)	4	
Not studied	N/A	3		13		4	
Not studied	N/A	12	5	29		4	
Scotter 1765, 25 July 1961, island, south end of Beniah Lake, 63deg 25'N 112deg 20'W, det. Thomson; Thomson 15608 looks wrong, non-usnic	1	2		7		5	
Not studied	N/A	9	6	45		4	
Scotter 2223, 29 June 1962, Gagnon Lake, 61deg 55'N 110deg 10'W;	1	13	2	2		5	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S5		*Cladonia chlorophaea*	Not studied	N/A
S4S5	Specimens should be reviewed for species concept	*Cladonia coccifera*	No specimens	0
S3S4	Probably underreported	*Cladonia coniocraea*	Not studied	N/A
S5		*Cladonia cornuta ssp cornuta*	Not studied	N/A
S5		*Cladonia crispata var crispata*	Not studied	N/A
S1S3	Known from NE Alberta, where probably not rare, to be expected in the southern boreal in the territory	*Cladonia cristatella*	No specimens	0
SU	Specimens should be reviewed for species concept, inventory needed	*Cladonia cryptochlorophaea*	No specimens	0
S3S5	Probably underreported	*Cladonia cyanipes*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Not studied	N/A	8	12	40		4	
Numerous specimens	Numerous	19	15	74	2 (Stenroos 1989a)	5	Should be 4
Not studied	N/A	1		13		4	
Not studied	N/A	20	8	60		4	
Not studied	N/A	11	2	35		4	
Scotter 3812, 19 August 1961, Ross Lake, 62deg 42'N 113deg 15'W, det Thomson; Ahti 14663, 19 August 1961, Middle Ross Lake, 62deg 40'N 113deg 15'W, young mesic *Picea mariana* forest, very sparsely [sic];	2	5				3	Should be 2
R. Sims 8327B, 27 July 1980, Site 80-29, 35 km NE of Inuvik, near Sitidgi Lake, low shrub (Betula sp.) bog with 50% cover by Betula & Ledum, Sphagnum, etc., TLC: cryptoclorophaeic and fumarprotocetraric acid, det. P.Y. Wong;	1		3	4		5	
Not studied	N/A	1	5	13		4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S2S4	Specimens should be reviewed, inventory needed	*Cladonia decorticata*	Not studied	N/A
S4S5		*Cladonia deformis*	Not studied	N/A
S1S3	Specimens should be checked for species concept	*Cladonia digitata*	A.H. Marsh 1283, 20 June 1972, MacKenzie Valley, Wrigley, near Roche qui trempe a l'eau, 63deg 18'40"N 123deg 36'30"W, elev 700 ft., *Betula papyrifera* with understory of *Picea mariana* , age 40, *Alnus incana* to height 10 ft., leaf and twig litter 95%, Cladonia species entirely on stumps and rotten logs.	1
S3	Specimens should be reviewed for species concept, at least one ssp could be rare, but subspecies have not usually been reported accurately	*Cladonia ecmocyna*	Not studied	N/A
S4S5		*Cladonia fimbriata*	Not studied	N/A
SNA	No reliable records known	*Cladonia glauca*	No specimens	0

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Not studied	N/A	17	1	8		4	Should be 3
Not studied	N/A	1	3	58		4	
None	0			2		3	Should be 2
Scotter 6142, 10 August 1965, T-53, Tuktoyaktuk, 69deg 25'N 132deg 56'W, det. Ahti; W.J. Cody 16521, 25 July 1967, Mackenzie Mountains, O'Grady Lake, 63deg 00'N 129deg 02'W, 4260 ft. elev., det. Thomson; Scotter 4086, 28 June 1964, Thelon River, 64deg 10'N 102deg 34'W [these all *ssp. Cladonia gracilis ssp. vulnerata*?, all with splits down the sides--but each of the three matches the packet determined by Ahti] The other 9 packets are short and brown, but some are K+yellow, so are probably just stressed *C. ecmocyna*--if so, then the species is not rare.	9		2	10		5	Should be 3
Not studied	N/A	5	3	25		4	
None	0					Not assessed	Should be 6

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S3S5	Specimens should be reviewed for species concept	*Cladonia gracilis ssp elongata*	Not studied	N/A
SU	Specimens should be reviewed for species concept	*Cladonia gracilis ssp gracilis*	No specimens	0
S5		*Cladonia gracilis ssp turbinata*	Not studied	N/A
SU	Specimens should be checked for species concept	*Cladonia gracilis ssp vulnerata*	No specimens	0
S1S3	Inventory needed	*Cladonia granulans*	Scotter 5688, 16 July 1965, T - 19, Anderson river, 69deg 20'N 128deg 13'W, dupl det. Ahti; Scotter 5650, 14 July 1965, T - 16 Anderson River, 69deg 17'N, 128deg 16'W, 14 July 1965.	1
S1S3	Inventory needed	*Cladonia grayi*	L.V. Hills s.n. 1 August 1970, Distr of MacKenzie, Inuvik, 68deg 21'N 133deg 43'W, on soil;	1
SU	Specimens should be checked for species concept, not likely present	*Cladonia humilis*	No specimens	0
SU	Probably underreported	*Cladonia macilenta*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Not studied	N/A	1	19			4	
None	0	3		38	5 (Thomson & Scotter 1983)	5	
Not studied	N/A	10	5	59		4	
See notes under *Cladonia ecmocyna*	4?					5	
Scotter 5650, 14 July 1965, T-14, Anderson River, 69deg 17'N 128deg 16'W, det. Ahti; Scotter 5688, 16 July 1965, T-19, Anderson River, 69deg 20'N 128deg 13'W, det. Ahti	2		1	1	1 (Stenroos 1989a)	Not assessed	Should be 2
None	0	1	3	3		3	Should be 2
(disregard, podetia too large, pored: Scotter 1573, 27 June 1961, N. Blanchford Lake, 62deg 12'N 113deg 30'W, muskeg)	0	1		2		5	
Ahti 14639, 19 August 1961, Lower Ross Lake, 62deg 40'N 113deg 15'W, on rotten log on open rock outcrop; Scotter 3806, 19 August 1961, Middle of Ross Lake, 62deg 42'N 113deg 15'W;	2	3	2			5	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Specimens should be checked for species concept	*Cladonia macroceras*	No specimens	0
S3S5		*Cladonia macrophylla*	Not studied	N/A
S2S4	Inventory needed	*Cladonia macrophyllodes*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
S. Talbot T6227-28, 11 August 1976, Nahanni National Park, 61deg 33'N 125deg 52'W, 1590 m elev., alpine *Dryas integrifolia - Carex rupestris - Cetraria nivalis* community, det. Ahti; S. Talbot T6001-34, 5 July 1976, Nahanni National Park, 61deg 43'N 125deg 53'W, 1385 m elev., alpine *Dryas integrifolia - Carex rupestris - Cetraria cucullata* community, det. Ahti; S. Talbot T6247-20, 12 August 1976, Nahanni National Park, 61deg 11'N 124deg 34'W, 1600 m elev., alpine *Alectoria ochroleuca - Cetraria ericetorum - Dryas octapetala* community, det. Ahti; M. Kuc s.n., 19 June 1968, Prince Patrick Island, vicinity of Mould Bay, 76deg 30'N 119deg 40'W, on barren sand, det. Ahti;	3					5	
Not studied	N/A	18	2	25		4	
Not studied	N/A	4		8		4	Should be 3

Location details in Museums and Literature				Number PMAE
Preliminary Conservation Rank	Notes	Taxon	PMAE	
SU	Specimens should be reviewed for species concept	*Cladonia maxima*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
G.R. Parker SP-70-27, 26 June 1970, Southampton Island, Salmon Pond, 64deg 15'N 84deg 55'W, moss and sedge meadow near lake shore, drainage poor, mainly on drier hummocks, det. P.Y. Wong; G.R. Parker SP-70-197, 10 July 1970, Southampton Island, Buttocks, 64deg 25'N 84deg 30'W, dry hummocks scattered within wet, well vegetated sedge meadow, det. P.Y. Wong; W.J. Cody 10125, 18 July 1957, "Burnt Lake" Eskimo [sic] Lake Basin, 68deg 52'N 132deg 05'W, rare among *Picea mariana*, *Ledum palustre var. decumbens*, *Vaccinium vitis-idaea var. minus*, *Alnus crispa* and *Empetrum nigrum*, det. P.Y. Wong; L.C. Raup 3407, 28 July 1939, Brintnell Lake, N. slope of Colonel Mt., soil, mossy places in open woods, lake to timber-line, occasional, 2600-4000 ft. elev., 62.5deg'N 127deg 35'W, det. S. LaGreca;	4			6		5	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Specimens should be reviewed for species concept	*Cladonia merochlorophaea*	No specimens	0
S2S4	Inventory needed	*Cladonia metacorallifera*	Not studied	N/A
S3S5		*Cladonia multiformis*	Not studied	N/A
S4S5		*Cladonia phyllophora*	Not studied	N/A
S4S5		*Cladonia pleurota*	Not studied	N/A
S5		*Cladonia pocillum*	Not studied	N/A
S5		*Cladonia pyxidata*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 1760, 2 July 1961, North-east of Beniah Lake, mature spruce forest, det. P.Y. Wong; Scotter 18603, 14 July 1972, Banks Island, 73deg 36'N 120deg 25'W, moist plant communities below a large snowbed, 500 ft. elev., det. P.Y. Wong; S. Talbot T5030-5, 16 July 1970, Nahanni National Park, 61deg 09'N 123deg 45'W, 657 m elev., on upper slope, 8% slope, N-facing, parent material, well drained, coarse weathered mantle, Krummholz evergreen scrub community dominated by *Abies lasiocarpa*, Pleurozium and Dicranum, det. Ahti (with notes "chemistry needs checking!")	3	1		2		5	
Not studied	N/A	1		10	1 (Stenroos 1989a)	4	Should be 3
Not studied	N/A	9	7	30		4	
Not studied	N/A	13	9	31		4	
Not studied	N/A	6	11	26	6 (Stenroos 1989a)	4	
Not studied	N/A	5	17	47		4	
Not studied	N/A	15	12	54		4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Possibly misreported	*Cladonia rei*	No specimens	0
S1S3	Specimens should be checked for species concept	*Cladonia scabriuscula*	P. Kuchar L8165, 14 August 1975, Yellowknife, UTM 11VPV394235, N of Detah, lowland spruce-tamarack forest	1
S2S4	Possibly underreported	*Cladonia squamosa*	Not studied	N/A
S3S4	Specimens should be checked for species concept, some of the reports will be *Cladonia trassii*	*Cladonia stricta*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
(These all probably not correct, cups too broad, podetia too short: Scotter 2281, 4 July 1962, Rutledge Lake, 61deg 35'N 110deg 45'W, det. Wong; S. Talbot T6173-28, 1 August 1976, Nahanni National Park, 61deg 45'N 125deg 30'W, 2220 m elev., alpine *Valeriana sitchensis - Drepanocladus uncinatus - Carex podocarpa* community, det. Wong; R. Sims 8267A, 26 July 1980, Site 80-23, 40 km SSW of Tuktoyaktuk, near Parsons Lake, 69deg 05'45"N 133deg 37'00"W, lichen heath on low, ice-wedge polygons, det. Wong)	0					5	
A.E. & R.T. Porsild s.n., 15-16 August 1927, Arctic Coast: Liverpool Bay, Nicholson Island, *ca.* 70deg N 129deg W	1			1		3	Should be 2
Not studied	N/A	2	2	10		4	Should be 3
Numerous specimens	Numerous	4	5	27		5	Should be 4

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Specimen should be checked for species concept	*Cladonia subcariosa*	No specimens	0
S2S4	Inventory needed	*Cladonia subfurcata*	Not studied	N/A
S3S5	Probably underreported	*Cladonia subulata*	Not studied	N/A
S5		*Cladonia sulphurina*	Not studied	N/A
S2S4	Inventory needed, specimens should be reviewed, probably underreported	*Cladonia symphycarpia*	Not studied	N/A
S1S3	Inventory needed	*Cladonia thomsonii*	No specimens	0
SU	Specimens should be reviewed, split from *Cladonia stricta*, possibly widespread	*Cladonia trassii*	No specimens	0
SNA	Misapplied	*Cladonia turgida*	No specimens	0
S5		*Cladonia uncialis*	Not studied	N/A
S1	Inventory needed	*Cladonia wainioi*	xxx	1
S3S5		*Coelocaulon aculeatum*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0	1				5	
Not studied	N/A	7	3	19		4	Should be 3
Not studied	N/A	10	1	17		4	
Not studied	N/A	9	8	43		4	
Not studied	N/A	2	2	2		4	Should be 3
None	0		1	3		3	Should be 2
None found, but a review of the specimens of *Cladonia phyllophora* may reveal some records	0					5	
None (Scotter 2311 and 2439 are misidentified)	0	3		3		3	Should be 6
Not studied	N/A	13	8	43		4	
None	0					2	
Not studied	N/A	4		13	11 (Kaernefelt 1986)	4	

Location details		In Museums and Literature		
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S3S4	Specimens should be reviewed for species concept	*Coelocaulon muricatum*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[3]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
S. Talbot T6103-37, 22 July 1976, Nahanni National Park, 61deg 08'N 123deg 47'W, 930 m elev., *Ledum palustre-Cladina alpestris-Cladina arbuscula (mitis)* community; A.A. Lindsey, 2, June 1951, Great Slave Lake, Yellowknife, as '*cf. muricatum*', Kaernefelt; G.B. Rossbach 6561, 7/8/65, growing intimately with other lichens & small bushes, on high, exposed, sandstone, sand, & clay barren, nw. side of Thelon River, *ca.* 20 mi. NE. of Lookout Pt. & Finnie River, 64deg 13'N 102deg 7'W, E. edge of Mackenzie, as '*cf. muricatum*', det. Kaernefelt; Thomson 11399, 21 July 1962, Artillery Lake, on sand terrace by beach, head of Timber Bay, 63deg 15'N 106deg W, det. Kaernefelt; C.D. Bird 26544, 3 June 1971, Mackenzie Mountains, 55 miles SSW of Norman Wells, Plains of Abraham, 64deg 33'N 127deg 42'W, 4600 ft. elev.,	Numerous		1	5	8 (Kaernefelt 1986)	4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Specimens should be reviewed, inventory needed	*Collema bachmannianum*	No specimens	0
S1S3	Inventory needed	*Collema ceraniscum*	xxx	xxx
S1S3	Specimens should be reviewed, inventory needed	*Collema crispum*	No specimens	0
SU	Specimen should be checked	*Collema flaccidum*	No specimens	0

CANL	Number CANL	Thomson *et al*. 1989[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Site 18, aspect SW 15deg, slump slope with solifluction, on soil, det. Kaernefelt; A.H. Marsh 3441, 9 July 1972, Mackenzie Valley, 30 miles east of Sans Sault Rapids, east end of Brokenoff Mountain, 65deg 40'30"N 127deg 42'W, 1400 feet elev., quarztitic slump in a limestone mountain, det. Kaernefelt... numerous additional specimens, not rare							
None	0			4	(given for "The Northwest Territories (Nunavut? in part?)" in Degelius 1974)	3	Should be 2
Scotter 30016, 20 July 1979, Banks Island, 73deg 30'N 120deg 20'W, Dryas-Potentilla and Carex community, elev. 82 m; Scotter 30057, 21 July 1979, Banks Island, 73deg 48'N 119deg 43'W, 55-60 m elev., Dryas community type;	2			1	2 (Degelius 1974)	3	Should be 2
None	0					3	Should be 2
None	0					5	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Inventory needed	*Collema furfuraceum var furfuraceum*	Fort Simpson, near SW side of island, 121 deg 22'30"W 61deg 51'40"N, elev 425 ft., closed, mature *Populus balsamifera* - Picea glauca stand at edge of small channel through the island; on Populus balsamifera, 4 June 1972;	1
S1S3	Inventory needed	*Collema fuscovirens*	Bird 30661 is fuscovirens (photod), others are tenax group	1
S1S3	Inventory needed	*Collema glebulentum*	No specimens	0
S1S3	Inventory needed	*Collema limosum*	No specimens	0
S1S3	Specimens should be checked, inventory needed	*Collema multipartitum*	Looks like *Collema curtisporum* : Bird 35103a, 4 August 1978, Mackenzie Mountains, Tawu Range, tributary of Arctic Red River, 65deg 20'N 130deg 48'W, elev 1065 m, near cirque, tundra slope	1
SU	Specimen should be checked	*Collema nigrescens*	No specimens	0
S2S3	Inventory needed	*Collema polycarpon var polycarpon*	C.D. Bird 26652b, Mackenzie Mountains, 55 mi SSW of Norman Wells, Plains of Abraham, 64deg 33'N 127deg 40'W, elev 4600 ft., site 22, aspect S 5deg, bird block on dolomite, 3 June 1971; C.D. Bird 26653, 3 June 1971, Mackenzie Mountains, 55 mi SSW of Norman Wells, Plains of Abraham, 64deg 33'N 127deg 40'W, elev 4600 ft., Site 22, aspect S 5deg, bird block, on dolomite; Bird 30815b, Franklin Mts,	4
			McConnell Range, 9 mi S of the summit of Cap Mt., glaciated area, 63deg 17'N 123deg 12'W, elev 3200 ft., aspect 0deg, limestone bird block on high ridge, site 42, on limestone, 8 July 1972; C.D. Bird 31020b, Mackenzie Mountains, Backbone Ranges, Root River Drainage, unglaciated area, 63deg 05'N 125deg 54'W, elev 6050 ft., aspect W 0-10deg, west-running ridge, site 48, on limestone, 9 July 1972	

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0			2		3	Should be 2
None	0		1	7		3	Should be 2
Only misidentified specimens, these are *Collema subparvum*? and *Placynthium nigrum*	0	1		1	1 (Degelius 1974)	2	
None	0			2	2 (Degelius 1974)	3	Should be 2
None	0			1		3	Should be 2
None	0					5	
None	0			2		3	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1	Inventory needed, specimen needs to be verified	*Collema subparvum?*	Not studied, found later in CANL	N/A
S3S4	Specimens should be reviewed for species concept	*Collema tenax*	Not studied	N/A
S4	Inventory needed	*Collema undulatum var granulosum*	Numerous specimens under *Collema auriforme* , probably not rare.	numerous
S5		*Dactylina arctica ssp arctica*	Not studied	N/A
S3S5		*Dactylina arctica ssp beringica*	Not studied	N/A
S3S4		*Dactylina ramulosa*	Not studied	N/A
S1S3	Inventory needed	*Dermatocarpon intestiniforme*	No specimens	0
SU	Probably misreported, need to review specimens	*Dermatocarpon luridum*	No specimens	0
SU	Specimens should be reviewed for species concept	*Dermatocarpon miniatum (var not specified)*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 92624, 26 July 1990, NWT, on lime rock, Hornaday River, 68deg 36'N 120deg 41'W, 510 m elev. (needs verification, specimen requested on loan to UBC for study)	1					Not assessed	Should be 2
Several specimens found misnamed as other species, a specimen review of all Collema from NWT needed	Numerous			7	(var substellatum given for "The Northwest Territories (Nunavut? In part?)" in Degelius 1974)	5	Should be 4
Common, mostly misidentified as *Collema auriforme*	Numerous	1		2		3	Found to be more common than previously thought, should be 4
Not studied	N/A	1	5	43		4	
Not studied	N/A		2	20		4	
Not studied	N/A		1	22		4	
None	0	1	2	2		3	Should be 2
Scotter 18559, 12 July 1972, Banks Island, 72deg 26'N, 124deg 42'W, Dryas community type with alternating low areas, 100 ft. elev., det. P.Y. Wong;	1			2		5	
Scotter 3774, 18 August 1961, Ross Lake, 62deg 42'N 113deg 15'W; Scotter 30138, 21 July 1979, Banks Island, 73deg 59'N 118deg 57'W, 30-125 m elev., Dryas community type;	2			6		5	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S3	Possibly overlooked	*Dermatocarpon miniatum var complicatum*	C.D. Bird 31021, 9 July 1972, Mackenzie Mountains, Backbone Ranges, Root River Drainage, unglaciated area, 63deg 05'N 125deg 54'W, elev 6050 ft., aspect W 0-10deg, W-running ridge, site 48, on limestone; C.D. Bird 35071, Mackenzie Mountains, Twau Range, tributary of the Arctic Red River, 65deg 22'N 130deg 45'W, elev 1000 m, SW-facing slope, on shaly sandstone; C.D. Bird 30816, Franklin Mts.,	3
			McConnell Range, 9 mi S of the summit of Cap Mountain, glaciated area, 63deg 17'N 123deg 12'W, elev. 3200 ft., aspect 0deg, limestone bird block on high ridge, site 42, on limestone, 8 July 1972;	
SNA	No reliable records known	*Dermatocarpon rivulorum*	No specimens	0
S2S3	Inventory needed	*Dibaeis baeomyces*	C.D. Bird 34939, 2 August 1978, Mackenzie Mountains, Tawu Range, tributary of Arctic Red River, 65deg 21'N 130deg 46'W, elev 1000 m, frost boil	1

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 1523, 18 June 1961, south-east end of Hearne Lake, 62deg 20'N 113deg 08'W; Scotter 33577, 2 August 1979, vicinity of Bathurst Inlet, 66deg 08'N 106deg 58'W, in Carex, Salix-Dryas + *Dryas-legume* communities; (these were all named as *Dermatocarpon fluviatile*, but the lobe thickness is too great; they all have multiple holdfasts, they may be *D. polyphyllizum* instead, the I-reaction needs to be checked, specimens requested on loan: Scotter 2268, 3 July 1962, Rutledge Lake, 61deg 35'N 110deg 45'W; Scotter 3779, 18 August 1961, on rock in stream, Upper Ross Lake, 62deg 42'N 113deg 15'W; Ahti 14604, 18 August 1961, Upper Ross Lake, 62deg 40'N 113deg 15'W, on stones in small creek;	4	1				3	
None	0					Not assessed	Should be 6
None	0		1	5		3	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SNA	No reliable records known	*Endocarpon pulvinatum*	No specimens	0
SNA	Likely present, but no evidence	*Endocarpon pusillum*	No specimens	0
SU	Possibly overlooked, inventory needed	*Ephebe hispidula*	No specimens	0
SU	Possibly overlooked, inventory needed	*Ephebe lanata*	No specimens	0
S5		*Evernia mesomorpha*	Not studied	N/A
S3S5		*Evernia perfragilis*	Not studied	N/A
S5		*Flavocetraria cucullata*	Not studied	N/A
S5		*Flavocetraria nivalis*	Not studied	N/A
S2S4	Inventory needed, specimens should be reviewed for species concepts	*Fulgensia bracteata*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0					6	
None	0					6	
Scotter 1947, 17 August 1961, North central Ross Lake, 62deg 42'N 113deg 15'W; Scotter 2590, 16 August 1962, Thkulthili Lake, on rock, 61deg 12'N 110deg 00'W; Scotter 3782, 18 August 1961, on rocks in stream bed, Upper Ross Lake, 62deg 42'N 113deg 15'W; Scotter 2312, 11 July 1962, South Taltson River, on rocky shore, 61deg 25'N 110deg 15'W	5	3		4		5	
None	0		1	3		5	
Not studied	N/A	15	9	41		4	
Not studied	N/A		3	21	1 (Thomson & Scotter 1995)	4	
Not studied	N/A	10	8	56		4	
Not studied	N/A	13	8	77		4	
Not studied	N/A	1	3		1 (Thomson & Scotter 1995)	4	Should be 3

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Specimens need to be checked	*Fulgensia fulgens*	No specimens	0
S2S4	Specimens should be reviewed, inventory needed	*Fuscopannaria praetermissa*	Not studied	N/A
S1	Inventory needed	*Glypholecia scabra*	No specimens	0
S1S3	Inventory needed	*Gowardia arctica*	No specimens	0
SU	Needs inventory and a study of the specimens.	*Gowardia cf. arctica (small, black, denser branched)*	Bird 33218, 28 June, 1973, Prince Patrick Island, District of Franklin, 1.5 mi W of Landing Lake, 76deg 19'N 119deg 43'W, elev. 300 ft., aspect 0 deg., animal enrichment site on siltstone-quartzite-ironstone outcrop overlooking valley, *Sporastatia testudinea-Rhizocarpon macrosporum-Rhizocarpon geographicum* community, Site 73-17, cover 2%, on soil (see photo, looks more likely than the Hrapko specimen)	1
S5		*Gowardia nigricans*	Not studied	N/A
S1	Inventory needed	*Gypsoplaca macrophylla*	No specimens	0

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0					3	Should be 2
Not studied	N/A	6	10	19		4	Should be 3
Scotter 8824, 3 August 1966, NWT, Campbell Lake, rock outcrop, 68deg 08'N 133deg 27'W, det. Ahti.	1		1			2	
None	0				1 (Halonen *et al*. 2009)	3	Should be 2
None	0					Not assessed	
Not studied	N/A	1	7	31		4	
Scotter 30169, 22 July 1979, NWT, Banks Island, near Mercy Bay, 10-15 m elev, Dryas-Draba community type, 73deg 59'N 119deg 02'W, det. Timdal	1				1 (Timdal 1990, Gypsoplacaceae and *Gypsoplaca*, a new family and genus of squamiform lichens, Contributions to Lichenology. In Honour of A. Henssen. Bibliotheca Lichenologica 38: 419-427)	2	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1	Inventory needed	*Heterodermia speciosa*	Scotter 2585, On rock, Thekulthili Lake, 110deg 00'N, 61deg 12'W, 15 August 1962; C.D. Bird & A.H. Marsh 27468a, MacKenzie Distric, 70 mi WNW of Norman Wells, 5 mi SW of the junction of the Mountain and Mackenzie Rivers, 65deg 38'N 128deg 59'W, elev 300 ft., Site 45, *Populus balsamifera* woods beside pond (gray wooded soil), on *Populus balsamifera*, 8 June, 1971.;	2
			Marsh 3982 was misidentified as this (it's *Imshaugia aleurites*)	
S3S5	Specimens should be reviewed for species concept	*Hypogymnia austerodes*	Not studied	N/A
S4S5		*Hypogymnia bitteri*	Not studied	N/A
SNA	No reliable records	*Hypogymnia metaphysodes*	No specimens	0
S5		*Hypogymnia physodes*	Not studied	N/A
S3S5	Specimens should be reviewed for species concept	*Hypogymnia subobscura*	Not studied	N/A
SNA	Misapplied	*Hypogymnia vittata*	No specimens	0
S3S5		*Imshaugia aleurites*	Not studied	N/A
S1S2	Inventory needed	*Lasallia caroliniana*	No specimens	0
S1S3	Possibly not rare in the SE	*Lasallia papulosa*	No specimens	0
S3S4		*Lasallia pensylvanica*	Not studied	N/A
SNA	No reliable records known	*Leciophysma finmarkicum*	No specimens	0

CANL	Number CANL	Thomson *et al*. 1989[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0	1				2	
Not studied	N/A	4	3	20		6	Should be 4
Not studied	N/A	2	8	20		4	
None	0					6	
Not studied	N/A	17	15	50		4	
Not studied	N/A	3		19		4	
None (Scotter 7-26511D was identified as *H. vittata*, but this is just ordinary *Hypogymnia physodes*)	0					3	Sould be 5, might be misapplied, but more specimens need to be searched first.
Not studied	N/A	4	5	20		4	
None	0			2		2	
None	0			16	2 (Llano 1950)	3	Should be 2
Not studied	N/A	8			1 (Llano 1950); 2 (Thomson & Scotter 1983)	4	
None	0					Not assessed	Should be 6

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S2	Inventory needed	*Lempholemma polyanthes*	No specimens	0
SNA	No reliable records known, not in Scotter & Thomson 1966	*Leptogium arcticum*	C.D. Bird 33547, 30 June 1973, NT, Prince Patrick Island, 1.5 mi W of Landing Lake, 76deg 19'N 119deg 52'W, elev. 350 ft., aspect 0deg., sandstone-siltstone-gravel barren on ridge, *Rhacomitrium lanuginosum* community; Thomson 10919, 2 August 1962, Coppermine, NU, 67deg 45'N 113deg 38'W, in pulvinate masses in low places in swale in lichen tundra.	2
S1S3	Inventory needed, specimens need to be reviewed for species concept	*Leptogium burnetiae*	No specimens	0
S1	Specimen should be verified, inventory needed	*Leptogium cf hibernicum*	No specimens	0
S1	Specimen study needed, inventory needed	*Leptogium cf plicatile* (definitely a member of the *L. plicatile* group, unknown species, requested for loan to UBC for more work)	Not studied, found later in CANL	N/A
S1S3	Overlooked?	*Leptogium gelatinosum*	No specimens	0

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
A.E. Porsild 17841, 13-20 August 1949, Banks Island, Lake near NE corner of island, approx lat 73deg 24'N 119deg 00'W, elev 400 ft. above sea level, rolling country;	1					Not assessed	Should be 2
None	0					6	
None	0					3	Should be 2
Scotter 30185, 22 July 1979, Banks Island, 73deg 59'N 119deg 02'W, near Mercy Bay, 10-15 m elev., Dryas - Draba community type	1					Not assessed	Should be 2
Thomson 12021, 11 July 1962, on iron seam in rock, Red Rock (Meridian) Lake, rock HCL+, vicinity of Fort Reliance, 62deg 45'N 106deg 35'W, field under *Collema polycarpon*	1					Not assessed	Should be 2
None	0		1			3	Should be 2

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Probably misapplied to populations of *Leptogium intermedium*, the small Leptogiums need inventory	*Leptogium intermedium*	No specimens	0
S2S4	Inventory needed; specimens should be reviewed for species concept	*Leptogium lichenoides*	Not studied	N/A
S1S2	Inventory needed	*Leptogium pseudofurfuraceum*	xxx	xxx
S2S4	Inventory needed	*Leptogium saturninum*	Not studied	N/A
SU	Specimens should be reviewed, the small Leptogiums need taxonomic study	*Leptogium subtile*	No specimens	0

CANL	Number CANL	Thomson *et al*. 1989[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Specimens of "*L. minutissimum*" need to be reviewed, most likely to be *L. intermedium*	Uncertain					Not assessed	
Not studied	N/A	1	2	9	1 (Thomson & Scotter 1983)	4	Should be 3
Ahti 32658, 10 July 1977, Mackenzie Mountains, Nahanni National Park, South Nahanni River, "Beehive Mtn", 61deg 33'30"N 125deg 15'W, 450-500 m elev., lower S slopes, *Picea glauca - Alnus crispa* woods (middle boreal zone), on *Salix bebbiana* in woods	1					5	Should be 2
Not studied	N/A			11	2 (Sierk 1964); 2 (Thomson & Scotter 1983)	4	Should be 3
None	0		2? (as Lepidium minutissimum)		1 (Thomson & Scotter 1983, as *L. minutissimum*)	5	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Inventory needed	*Leptogium tenuissimum*	C.D. Bird and K.E. Hinkes 34551, Mackenzie Mountains, Carcajou Range, junction of Powell creek and west side tributary, 60 mi W of Norman Wells, 65deg 16'N 128deg 47'W, elev 1000 ft., east-facing bank in mixed woods, 29 June 1977; (all or mostly *Leptogium intermedium* , plus some *Leptogium subtile* ?): J.W. Thomson 15561, 12-13 June 1964, On soil mound at top of hill, Inuvik, 68deg 20'N 133deg 45'W.	2
S3	Inventory needed	*Lichenomphalia hudsonianum*	Bird 31514, NWT, Franklin Mts, McConnell Range, Cap Mt., glaciated area, 63deg 23'N 123deg 12'W, elev 4700 ft., aspect S5-10deg, *Eriophorum vaginatum* meadow, Site 59, on soil, 10 July, 1972; Bird 26958, 5 June, 1971, Franklin Mts, McConnell Range, 100 mi SE of Norman Wells, Mt. Clarke, 64deg 25'N 124deg 13'W, elev 4750 ft., site 32, level hummocky wet meadow, on mosses; Bird 26931, 5 June, 1971, Franklin Mts, McConnell Range, 100 mi SE of Norman Wells, Mt. Clarke, 64deg 25'N 124deg 13'W, elev., 4500 ft. elev., Site 31, aspect SW 5deg, hummocky wet meadow, on mosses; Bird 31420, Franklin Mts, McConnell Range, Cap Mountain, glaciated area, 63deg 24'N 123deg 14'W, elev. 4400ft., aspect E 5deg., sedge slope with some Silurian sandstone, Site 56deg, on vegetabilia, 10 July, 1927; Bird 27043, 5 June, 1971, Franklin Mts., McConnell Range, 100 mi SE of Norman Wells, Mt. Clarke, 64deg 25'N 124deg 13'W, elev 4800 ft., Site 34, aspect NW 5deg, wet meadow, on mosses; Bird 34957, 2 August, 1978, MacKenzie Mountains, Tawu Range, tributary of Arctic Red River, 65deg 21'N 130deg 46'W, elev., 1000 m, moist depression.	6
S1S3	Inventory needed	*Lobaria linita*	A.H. Marsh 2039, 22 July 1972, Mackenzie Valley, Fort McPherson, N of Rat River, 67deg 51'N 135deg 27'30"W, elev 100 ft., sparse *Picea glauca* over an 80% shrub canopy of *Betula glandulosa* and Salix, ground cover of Ericaa [sic], Carex and Cladina.	1
S1S2	Inventory needed	*Lobaria retigera sensu lato*	*Lobaria pseudopulmonaria* , not *Lobaria retigera sensu stricto* : C.D. Bird 34977, Mackenzie Mountains, Tawu Range, tributary of Arctic Red River, 65deg 21'N 130deg 46'W, elev 1000 m, ridge, on the ground, 2 August 1978	1

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0	1	2	7	2 (Sierk 1964)	3	Should be 2
C.D. Bird & A.H. Marsh 26931, 5 June 1971, Franklin Mountains, McConnell Range, 100 miles SE of Norman Wells, Mt. Clarke, 64deg 25'N 124deg 13'W, elev. 4500 ft., Site 31, aspect SW 5deg, hummocky wet meadow, on mosses; Scotter 4137, 28 June 1964, Thelon River, 64deg 10'N 102deg 34'W	2		1	4		3	
None	0			3	3 (Thomson & Scotter 1983)	3	Should be 2
None	0			1		2	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S2	Inventory needed	*Lobaria scrobiculata*	Scotter 1848, 6 August 1961, Rock cliff, west Thistlethwaite Lake 63deg 10'N 113deg 35'W, 6 August 1961.	1
S4S5		*Masonhalea richardsonii*	Not studied	N/A
S2S4	Inventory needed, probably overlooked	*Massalongia carnosa*	Not studied	N/A
S2S4	Possibly overlooked	*Melanelia commixta*	Not studied	N/A
S2S4	Possibly overlooked	*Melanelia disjuncta*	Not studied	N/A
S4S5		*Melanelia hepatizon*	Not studied	N/A
S3S5		*Melanelia panniformis*	Not studied	N/A
S2S4	Inventory needed	*Melanelia sorediata*	Not studied	N/A
S5		*Melanelia stygia*	Not studied	N/A
S2S4	Possibly overlooked	*Melanelia tominii*	Not studied	N/A
S1S3	Specimen should be checked	*Melanelixia fuliginosa*	No specimens	0
S2S4	Inventory needed	*Melanelixia subaurifera*	Not studied	N/A
S2S4	Inventory needed, possibly underreported in the southwest	*Melanohalea elegantula*	Not studied	N/A

CANL	Number CANL	Thomson *et al*. 1989[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
A.E. Porsild s.n., 7-11 June 1928, Great Bear Lake, foot of Dease Arm, near the mouth of the Dease River, 66deg 53'N 118deg 36'W; Scotter 1848, West Thistlethwaite Lake, 63deg 10'N 113deg 35'W, 6 August 1961, rock cliff	1	1		1		2	
Not studied	N/A	3	4	31		4	
Not studied	N/A	3		4		4	Should be 3
Not studied	N/A	1		7		4	Should be 3
Not studied	N/A	3		6	4 (Esslinger 1977)	4	Should be 3
Not studied	N/A	6	2	21		4	
Not studied	N/A	6		10	3 (Esslinger 1977)	4	
Not studied	N/A		1	3	3 (Esslinger 1977)	4	Should be 3
Not studied	N/A	13	1	27		4	
Not studied	N/A	4		3	8 (Esslinger 1977)	4	Should be 3
Scotter 2584, 15 August 1962, on rock, Thekulthili Lake, 110deg 00'N 61deg 12'W, 15 August 1962	1					3	Should be 2
Not studied	N/A	3	2	6	3 (Esslinger 1977)	4	Should be 3
Not studied	N/A		1	2	2 (Esslinger 1977)	4	Should be 3

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S3S5	Probably common in the south	*Melanohalea exasperatula*	Not studied	N/A
SNA	No reliable records	*Melanohalea glabrata*	No specimens	0
S3S4		*Melanohalea infumata*	Not studied	N/A
S3S5	The few records are widespread, possibly underreported	*Melanohalea olivacea*	Not studied	N/A
S4S5		*Melanohalea septentrionalis*	Not studied	N/A
S4S5		*Nephroma arcticum*	Not studied	N/A
S1S3	Possibly overlooked in the SW	*Nephroma bellum*	No specimens	0
S3S5		*Nephroma expallidum*	Not studied	N/A
S1S3	Possibly underreported in forests in the far SW, inventory needed	*Nephroma helveticum ssp. sipeanum*	A.H. Marsh 6197, 8 July 1976, *Picea glauca* forest on floodplain across South Nahanni River from Prairie Creek alluvial fan, 61deg 15'N 124deg 27'W, elev 305 m, on dead *Alnus sp.* ; C.D. Bird 34870a, 1 August 1978, Mountain River, 1 mi below mouth of Cayna River, 65deg 25'N 129deg 09'W, elev 150m, SW-facing valley slope, on *Populus balsamifera*; C.D. Bird 34652, Mackenzie Mountains, Carcajou Range, west side of Powell Creek, 60 mi W of Norman Wells, 65deg 16'N 128deg 47'W, elev 2000 ft, steep N-facing slope, *Picea mariana* woods, on *Picea mariana* , 30 June 1977; C.D. Bird 34540, 29 June 1977, Mackenzie Mountains, Carcaju Range, junction of Powell	5
			Creek and west side tributary, 60 mi W of Norman Wells, 65deg 16'N 128deg 47'W, on *Betula papyrifera* in *Picea mariana* woods, elev 1000 ft; (label only): C.D. Bird 34456, 28 June 1977, Mackenzie Mts, Carcajou Range, W side tributary of Powell Creek, 60 mi W of Norman Wells, 65deg 16'N 128deg 47'W, elev 1000 ft., *Picea mariana* woods along creek, on *Betula papyrifera*	

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Not studied	N/A	4	3	13		4	
None	0			1		Not assessed	Should be 6
Not studied	N/A	4	2	9	7 (Esslinger 1977)	4	
Not studied	N/A	3		11		4	
Not studied	N/A		13	30	5 (Esslinger 1977)	4	
Not studied	N/A	5	5	25		4	
None	0					3	Should be 2
Not studied	N/A	8	8	21		4	
None	0					3	Should be 2

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Inventory needed	*Nephroma helveticum ssp. helveticum*	Need verification, see photos of specimens: Scotter 2309, 10 July 1962, Rocky outcrop, South Taltson River, 100deg 15'N 61deg 25'W; Scotter 23267, 31 July 1975, Rabbitkettle Hot Springs, 61deg 56'N 127deg 10'40"W, elevation 670 m, *Picea glauca* forest, on erratic granite boulders; A. H. Marsh 5838, 5 August 1975, Rabbitkettle Hot Springs, 61deg 56'15"N 127deg 10'40"W, elevation 670 m,	2
			Picea glauca forest, on erratic granite boulders	
SNA	Misreported	*Nephroma laevigatum*	No specimens	0
S3S4	Inventory needed	*Nephroma parile*	Not studied	N/A
SNA	No specimens known, but to be expected in the southwest corner	*Nephroma resupinatum*	No specimens	0
S1S3	Inventory needed; specimens should be reviewed for species concept	*Pannaria conoplea*	No specimens	0
SNA	Possible, but no evidence	*Pannaria hookeri*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 2309, 10 July 1962, rocky outcrop, south Taltson River, 61deg 25'N 110deg 15'W;	1	1		2		3	Should be 2
None	0					Not assessed	Should be 6
Not studied	N/A	1		7		4	
L.C. Raup 3192, July 1939, Brintnell Lake, muskeg covering talus from Cathedral Mt., rock, common on boulders, 62deg 5'N 127deg 35'W; S. Talbot T6085-38, 18 July 1976, Nahanni National Park, 61deg 19'N 124deg 30'W, 533 m elev., montane *Populus trmuloides - Alnus cripsa - Viburnum edule* community; Macoun s.n. May 1888, Athabasca River, NWT [AB instead?];	2					6	
None	0	1		1		3	Should be 2
None	0					6	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S3S4	The few records are widespread, possibly underreported	*Parmelia fraudans*	Not studied	N/A
S5		*Parmelia omphalodes*	Not studied	N/A
S4S5		*Parmelia saxatilis*	Not studied	N/A
S2S3	Specimens need to be checked, inventory needed	*Parmelia skultii*	No specimens	0
S5		*Parmelia sulcata*	Not studied	N/A
SU	Specimens should be checked for species concept	*Parmeliella triptophylla*	No specimens	0
S5		*Parmeliopsis ambigua*	Not studied	N/A
S3S5		*Parmeliopsis hyperopta*	Not studied	N/A
S5	Specimens should be reviewed for species concept	*Peltigera aphthosa sensu lato*	Not studied	N/A
S3S5	Specimens should be reviewed for species concept	*Peltigera canina sensu lato*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Not studied	N/A			8		4	
Not studied	N/A	17	2	33		4	
Not studied	N/A	10	1	24		4	
R. Thorsteinsson s.n., 12-20 July 1958, Mackenzie King Island; M. Kuc 8, 10-15 July 1968, Fitzwilliam Owen Island, on dry tundra; M. Kuc AO-7, 22-26 june 1968, NW Banks Island, Decca Green, *ca*. 74deg 124'W, tundra; S.A. Edlund s.n., 11 August 1985, Site 309-A, N Sproule Pen., 76deg 27'N 115deg 02'W	4					3	
Not studied	N/A	16	9	53		4	
None	0		1	2		5	
Not studied	N/A	11		9		4	
Not studied	N/A	11	8	22		4	
Not studied	N/A	23	1	61		4	
Not studied	N/A	25	3			4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1	Inventory needed	*Peltigera castanea*	No specimens	0
S1	Inventory needed	*Peltigera collina*	No specimens	0
S3	Inventory needed	*Peltigera didactyla*	Scotter 1503, 19 June 1961, S end of Hearne Lake 62deg 20'N 113deg 08'W; Scotter 1623, 9 July 1961, 26 y.o. birch stand, W Desperation Lake, 62deg 35'N 112deg 15'W, S - 51 - 55; Scotter 1521, 17 June 1961, SE end of Hearne Lake, 62deg 20'N 115deg 08'W; Scotter 2377, birch type, North Taltson River, 109deg 10'N 61deg 50'W, 24 July 1962; A.H. Marsh 2107, 25 July 1972, Fort McPherson, W of Shiltee Rock, 67deg 14'30"N 135deg 13'W,	8
			elev 1400 ft, stunted Picea mariana over open *Alnus incana* thickets, Sphagnum 60%, sedge tussocks 10%, lichens 10%, herbs 20%; C.D. Bird 33061, 27 June 1973, Prince Patrick Island, 1.5 mi SE of Landing Lake, 76deg 19'N 119deg 44'W, elev 250 ft., aspect 10-60deg S, siltstone outcrop, *Lecanora rupicola* community, Site 73-12, cover+, on soil; C.D. Bird 31310, Franklin Mountains, McConnell Range, Cap Mountain, glaciated area, 63deg 24'N 123deg 14'W, elev 4400ft, aspect 0-5deg, exposed ridge with Silurian sandstone and Precambrian erratics, Site 55, on soil, 10 July 1972; Scotter 1739, 19 July 1961, 16 year burn NW of Lac du Mort, stand 81-85, 63deg 05'N 111deg 15'W.	

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0		4			6	Should be 2
Ahti 32160, 6 July 1977, Nahanni National Park, at base of The Twisted Mountain, 200 m elev., 61deg 12'N 123deg 40'W, rich second-growth Populus woods at base of cliff, on big boulders (middle boreal);	1					6	Should be 2
None	0		2			3	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S3S4		*Peltigera elisabethae*	Not studied	N/A

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
S. Talbot T6093-23, 20 July 1976, Nahanni National Park, 61deg 19'N 124deg 29'W, 658 m elev., montane *Picea glauca - Betula papyrifera - Hylocomium splendens* community, det. Goward; W.J. Cody 8888, 21 July 1955, Mackenzie District, Fort Simpson 61deg 52'N 121deg 22'W, in moist moss in *Picea glauca* - Salix - Alnus bush behind Experimental Farm, det. Goward; Ahti 32161, 6 July 1977, Nahanni National Park, at base of The Twisted Mountain, 200 m elev., 61deg 12'N 123deg 40'W, rich second growth Populus woods at base of cliff, on big boulders (middle boreal), det. Goward; S. Talbot T6085-31, 18 July 1976, Nahanni National Park, 61deg 19'N 124deg 30'W, 533 m elev., montane *Populus tremuloides - Alnus crispa - Viburnum edule* community, det. Goward;	Numerous					6	Should be 4

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Possible, but no evidence	*Peltigera extenuata*	No specimens	0
SU	Specimens should be checked	*Peltigera horizontalis*	No specimens	0
S2S4	Inventory needed	*Peltigera lepidophora*	Not studied	N/A
S3S4	Specimens should be reviewed for species concept	*Peltigera leucophlebia sensu lato*	Not studied	N/A
S4S5		*Peltigera malacea*	Not studied	N/A

CANL	Number CANL	Thomson *et al*. 1989[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
C.D. Bird 31926, 11 July 1972, Wrigley, 1/3 way up slope from Mackenzie River to townsite, glaciated area, 63deg 13'N 123deg 27'W, 400 ft. elev., aspect 0deg, mixed woods on terrace, site 66, on soil, det. Goward; S. Talbot T6036-34, 9 July 1977, Nahanni National Park, 61deg 52'N 126deg 38'W, 570 m elev., lowland *Picea glauca - Hylocomium splendens* - Rhytidium/Pleurozium community, det. Goward; Ahti 32162, 8 July 1977, Nahanni National Park, by Virginia Falls, 61deg 36'N 125deg 43'W,							
None	0					6	
None	0			1		6	
Not studied	N/A	3	2	12		4	Should be 3
Not studied	N/A		11	39		4	
Not studied	N/A	17	5	44		4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Inventory needed	*Peltigera membranacea*	Scotter 6156, 13 August, 1965, T-58, Tuktoyaktuk, 69deg 26'N132deg 09'W (photo fuzzy, some of this may be wrong); A.H. Marsh 5695 (?), 4 August 1975, Rabbitkettle Hot Springs, 61deg 56'15"N 127deg 10'40"W, 670 m elev, *Picea glauca* forest (photo fuzzy, can't make out perfectly)	2
S2S3	Inventory needed	*Peltigera neckeri*	C.D. Bird 35062, 3 August 1978, Mackenzie Moutnain, Tawu Range, tributary of Arctic Red River, 65deg 22'N, 130deg 45'W, elev 1000 m, SW-facing slope, rock crevice, det Goward; A.H. Marsh 5232a, 17 July 1976, Nahanni Hot Springs, 61deg 15'20"N 124deg 03'35"W, elev 215 m, overmature *Picea glauca* forest on floodplain on rotten logs, det Goward; Scotter 5686, 15 July 1965, T-18, Anderson River 69deg 23'N 128deg 10'W, det Goward 1984; C.D. Bird 27479, 8 June 1971,	4

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 6156, 13 August 1965, T-58, Tuktoyaktuk, 69deg 26'N 132deg 55'W, det. Goward; S.S. Talbot T 6188 - 21, 5 August 1976, Nahanni National Park, 61deg 47'N 127deg 17'W, 1173 m elev., subalpine *Picea glauca - Equisetum sylvaticum - Ptilidium crista-castrensis* community, det. Miadlikowska; J. Lambert p145-1; 3 July 1965, E side of Canoe Lake, 68deg 13'N 135deg 55'W, 320 m elev., tongue of slide;	3		1	1		3	Should be 2
S. Talbot T 6134-22, 27 July 1976, Nahanni National Park, 61deg 40'N 126deg 05'W, 61deg 40'N 126deg 05'W, 1143 m elev., montane *Pinus contorta-Cladina mitis/arbuscula-Linnaea borealis/Arctostaphylos uva-ursi* community; S. Talbot T 6085 - 25, 18 July 1976, Nahanni National Park, 61deg 19'N 124deg 30'W, 533 m elev., montane *Populus tremuloides - Alnus crispa - Viburnum edule* community; S.S. Talbot T5043- 20, 23 July 1975, Nahanni National Park, Mtns. on S. bank of Flat R., near its confluence with S. Nahanni R., 61deg 30'N 125deg 22'W, 1097 m elev., on mid-slope, 161% slope,	4					3	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
			70 mi WNW of Norman Wells, 5 mi SW of the junction of the Mountain and Mackenzie Rivers, 65deg 38'N, 128deg 59'W, elev 300 ft., site 46, *Populus balsamifera* woods beside pond (gray wooded soil), on *Populus balsamifera* (det as cf neckeri by Goward)	

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
S-facing; dry, coarse weathered mantle, subalpine scrub with scattered trees dominated by *Picea glauca*, *Junipers communis* and *Shepherdia canadensis*; A.H. Marsh 2203, 26 July 1972, Fort McPherson, NNE of Shiltee Rock, on east bank of Peel River, 67deg 20'N 134deg 52'W, 50 feet elev., open *Picea mariana* with *Betula papyrifera* over Salix and *Betula glanudulosa*, litter and Ericas 50%, Sphagnum mounds 30%, mosses and lichens 20%;							
450-500 m elev., the spray zone of the falls, on floor of moist spruce forest, common, det. Vitikainen; Scotter 8837, 3 August 1966, Campbell Lake, 68deg 08'N 133deg 27'W, S-120, det. Goward; plus more...not rare							

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S3S4		*Peltigera neopolydactyla*	No specimens	

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Ahti 32214, 6 July 1977, Mackenzie Mts., Nahanni Natl. Park, Flat River, near the South Nahanni River Junction, National Park, 61deg 31'N 125deg 21'W, 1204 m elev., on upper slope, 98% slope, N. facing, dry, coarse weathered mantle, open evergreen dwarf scrub dominated by *Cassiope tetragona* and *Cladina alpestris*, det. Goward; S. Talbot T6102-, 21 July 1976, Nahanni National Park, 61deg 08'N 123deg 47'W, 914 m elev., *Betula glandulosa - Vaccinium uliginosum - Hylocomium splendens* community, det. Goward; S. Talbot T6181-14, 2 August 1976, Nahanni National Park, 61deg 47'N 127deg 23'W, 1372 m elev., subalpine *Sphagnum warnstorfii - Vaccinium uliginosum - Carex aquatilis* poor fen community, det. Goward; S. Talbot T6191-28, 5 August 1976, Nahanni National Park, 61deg 47'N 127deg 16'W, 1158 m elev., subalpine *Abies lasiocarpa - Picea glauca - Betula glandulosa - Pleurozium schreberi* community; S. Talbot T6080-26, 16 July 1976, Nahanni National Park, 61deg 16'N 124deg 09'W, 915 m elev., subalpine *Abies lasiocarpa - Comus canadensis - Ptilium crista-castrensis* community, det. Goward; S. Talbot T6053-36,	11					5	Should be 4

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Specimens should be reviewed for species concept	*Peltigera occidentalis*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
12 July 1976, Nahanni National Park, 61deg 21'N 124deg 57'W, 1125 m elev., subalpine *Abies lasiocarpa - Hylocomium splendens - Nephroma arctica* community, det. Goward; S. Talbot T6125-42, 26 July 1976, Nahanni National Park, 61deg 38'N 126deg 07'W, 1448 m elev., subalpine *Betula glandulosa - Dryas integrifolia* - Cetraria *ca.* 450 m elev., 61deg 32-33'N 125deg 23-24'W, mossy, calcareous cliff; S. Talbot T5044-8A, 23 July 1975, Nahanni richardsonii community, det. Goward; S. Talbot T6083-29, 17 July 1976, Nahanni National Park, 61deg 15'N 124deg 06'W, 480 m elev., *Picea mariana - Ledum groenlandicum* - feathermoss (*H. splendens*) community, det. Goward; S. Talbot T6275-33, 15 August 1976, Nahanni National Park, 61deg 13'N 123deg 48'W, 210 m elev., Lowland *Larix laricina - Andromeda polifolia - Sphagnum angustifolium/S. magellanicum* poor fen, det. Goward; S. Talbot T6091-40, 19 July 1976, Nahanni National Park, 61deg 18'N 124deg 31'W, 424 m elev., montane *Picea mariana - Ledum groenlandicum - Hylocomium splendens* community, det. Goward;							
None	0					5	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Specimens should be reviewed for species concept	*Peltigera polydactyla*	No specimens	0
S4	Specimens need to be checked, possibly overlooked	*Peltigera ponojensis*	No specimens	0
S1S3	No specimens known, but to be expected and possibly not rare, inventory needed	*Peltigera praetextata*	No specimens	0
S3	Possibly overlooked in the south	*Peltigera retifoveata*	A.H. Marsh 1604, 5 July 1972, Fort Norman, Bear Rook, bank of Mackenzie River, 64dg 59'N 125deg 38'W, elev 300 ft., open *Picea mariana*, age 120, 95% ground cover of *Hylocomium splendens* with *Vaccinium vitis-idaea* and *Arctostaphylos rubra* over; Scotter 5562, T - 6, W side of Anderson River 68deg 33'N, 128deg 29'W, 10 July 1965; (as *cf retifoveata*): A.H. Marsh 2438, 2 August 1972, East of Fort McPherson, borrow pit adjacent to Dempster Hwy, 67deg 23'30"N 134deg 23'W, elev 200 ft, *Picea mariana*, age 150, scattered *Betula papyrifera*, age 25, scattered Alnus and Salix, *Ledum palustre* 40%, litter 35%, mosses 25%	3
S2S4	Specimens should be reviewed for species concept	*Peltigera rufescens*	Not studied	N/A
S3S4		*Peltigera scabrosa*	Not studied	N/A
S2S4	Possibly underreported	*Peltigera venosa*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
One specimen possible, but just a tiny scrap, cannot be identified (M. Kuc 26-29, May 1968)	0	2	2	20		5	
Numerous specimens	Numerous					5	Should be 4
Ahti 32159, 6 July 1977, Mackenzie Mountains, Nahanni National Park, at base of The Twisted Mountain, *ca.* 200 m elev., 61deg 12'N 123deg 40'W, rich second-growth Populus woods at base of cliff, on big boulders, middle boreal zone;	1				1 (Thomson & Scotter 1983), but their species concept is unknowable	6	Should be 2
None	0				9 (Goffinet 1992)	3	
Not studied	N/A		10	42		4	Should be 3
Not studied	N/A		5			4	
Not studied	N/A	1	1	5	1 (Thomson & Scotter 1983)	4	Should be 3

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Inventory needed	*Phaeophyscia constipata*	A.H. marsh 5803, 5 August 1975, Rabbitkettle Hot Springs, 61deg 56'15"N 127deg 10'40"W, elev 670 m, Elymus sp. Grassland on steep, N-facing slope of ancient creek channel, abundant; A.H. Marsh 5771, 4 August 1975, Rabbitkettle Hot Springs, 61deg 56'15"N 127deg 10'40"W, elev 670 m, *Picea glauca* forest	2
SU	Specimen should be checked for species concept to sort out this species from *Phaeophyscia decolor* and *Phaeophyscia endococcina*	*Phaeophyscia endococcinoides*	No specimens	0
S2S4	Inventory needed	*Phaeophyscia sciastra*	Not studied	N/A
S3S4	Possibly underreported in boreal forest	*Physcia adscendens*	Not studied	N/A
S4S5	Specimens should be reviewed for species concept, most or many records should be *Physcia alnophila*	*Physcia aipolia*	Not studied	N/A
S3S5		*Physcia caesia*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1972[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0	2		1		3	Should be 2
None	0	1		2		5	
Not studied	N/A		1	9		4	Should be 3
Not studied	N/A		1	6		4	
Not studied	N/A	4	5	17		4	
Not studied	N/A	6	4	20		4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S2S4	Specimens should be reviewed for species concept; possibly underreported, the dots are widely scattered across the Canadian Arctic	*Physcia dubia*	Not studied	N/A
S3	Inventory needed; specimens should be reviewed for species concept	*Physcia phaea*	C.D. bird 33003, 27 June 1973, Site 73-10, Cover 1%, on soil, Prince Patrick Island, 1.5 mi SE of Landing Lake, 76deg 19'N 119deg 44'W, elev 300 ft., aspect 0deg, snowy owl enrichment site (15 x 15 ft.) on siltstone outcropping overlooking valley, *Grimmia apocarpa - Xanthoria candlaria - Xanthoria elegans* community; C.D. Bird 26173, 1 June 1971, Mackenzie Mountains, 55 mi SSW of Norman Wells, Plains of Abraham, 64deg 33'N 127deg 43'W, elev 4500 ft., Site 2, aspect S 5deg, bird blocks, on dolomite and quartzite, 1 June, 1971; A.H. marsh 5805, 5 August 1975, Rabbitkettle Hot Springs, 61deg 56'15"N 127deg 10'40"W, elev 670 m, Elymus grassland on N-facing bank of abandoned creek, on erratic granite boulder; Scotter 2610, 16 August, 1962, On rock, Thekulthili Lake, 110eeg 00'N 61deg 12'W, 16 August 1962	4

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Not studied	N/A	2	4	11	1 (Thomson & Scotter 1983)	4	Should be 3
Ahti 14555, 18 August 1961, Upper Ross Lake, 62deg 40'N 113deg 15'W, rock outcrop on lakeshore, abundant; C.D. Bird 26172, 1 June 1971, 55 miles SSW of Norman Wells, Plains of Abraham, 64deg 33'N 127deg 43'W, 4500 ft. elev., Site 2, aspect S 5deg, limestone bird blocks, on rock; Scotter 3775, 17 August 1961, Ross Lake, 62deg 42'N 113deg 15'W; Thomson 11308, 7 July 1962, Great Slave Lake, vicinity of Yellowknife, on granite, north of Yellowknife, 62deg 30'N 113deg 12'W; Scotter 2610, 16 August 1962, on rock, Thekulthili Lake, 61deg 12'N 110deg 00'W;	5	3		6		3	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Probably underreported and not rare in the south	*Physcia stellaris*	No specimens	0
S1	Inventory needed	*Physcia tribacia*	No specimens	0
SU	Specimens should be checked for species concept	*Physconia americana*	No specimens	0
SU	Specimens should be checked for species concept	*Physconia detersa*	No specimens	0
S5		*Physconia muscigena*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 2295, 8 July 1962, South Taltson River, 61deg 25'N 110deg 15'W, on poplar tree, sandy shore; Scotter 2493, 15 August 1962, Thekulthili Lake, on poplar tree, 61deg 12'N 110deg 00'W; Scotter 2532, 15 August 1962, Thekulthili Lake, on Salix, 61deg 12'N 110deg 00'W, det. Brodo; W.J. Cody 8070, 4 June 1955, Fort Simpson, 61deg 52'N 121deg 22'W, on ? Alnus; Scotter 2494 and 2495, 15 August 1962, Thekulthili Lake, 61deg 12'N 110deg 00'W, on poplar tree, det. Brodo;	5	2				5	
Ahti 14408, 15 August 1961, NWT: District of Mackenzie, Middle Ross Lake, 62deg 40'N 113deg 15'W, on granitic rock outcrop covered by open *Pinus banksiana* woodland, by shore, det. R. Moberg;	1					3	Should be 2
None	0					5	
Scotter 2580 and 2586, 15 August 1962, on rock, Thekulthili Lake, 61deg 12'N 110deg 00'W, det. Esslinger;	1	1				5	
Not studied	N/A	8	15	42		4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S2S4	Inventory needed	*Physconia perisidiosa*	Not studied	N/A
S1	Inventory needed	*Pilophorus robustus*	Bird 34942, 2 August, 1978, Mackenzie Mountains, Tawu range, tributary of Arctic Red River, 65deg 21'N 130deg 46'W, elev. 1000 m, on stone in frost boil.	1
S1S3	Inventory needed	*Placynthium asperellum*	J.W. Thomson 12038, 9-16 July 1962, Great Slave Lake, on rock on exposed point near portage from G Slave Lake, vicinity of Fort Reliance, 62deg 45'N 106deg 36'W'; label only: C.D. Bird 36082, 3 August 1978, Mackenzie Mountains, Tawu range, tributary of Arctic Red River, 65deg 22'N 130deg 45'W, elev 1000 m, SW facing slope, on shaly sandstone;	2
S4		*Placynthium nigrum*	No specimens	0
S1S2	Specimen should be verified, inventory needed	*Placynthium pulvinatum? (see Scotter 30084 (CANL))*	Not studied, found later in CANL	N/A
S1S3	Inventory needed	*Platismatia glauca*	No specimens	0
S1S3	Possibly overlooked	*Polychidium muscicola*	No specimens	0
S3S4		*Protopannaria pezizoides*	Not studied	N/A
S4S5		*Pseudephebe minuscula*	Not studied	N/A
S3S4		*Pseudephebe pubescens*	Not studied	N/A
S1	Inventory needed	*Psora tenuifolia*	Bird 34680, 30 June, 1977, Mackenzie Mountains, Carcajou Range, W side of Powell Creek, 60 mi W of Norman Wells, 65deg 16'N 128deg 47'W, elev. 2700 ft, animal enrichment site on exposed ridge, on the ground, det. Timdal. (photo taken of specimen)	1

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Not studied	N/A			8		4	Should be 3
None	0			1		2	
None	0	1	2	8	1 (Thomson & Scotter 1983)	3	Should be 2
Numerous specimens	Numerous		3	4		5	Should be 4
Scotter 30084, 21 July 1979, Banks Island, 73deg 48'N 119deg 43'W, 55-60 m elev., Dryas community type;	1					Not assessed	Should be 2
Ahti 32674, 11 July 1977, Mackenzie Mountains, Nahanni National Park, Tlogotsho Plateau, *ca.* 1500 m elev., 61deg 09'N 124deg 32'W, rock field on mountain summit, shady boulder face, at base;	1	2				3	Should be 2
None	0	1		2		3	Should be 2
Not studied	N/A	1	5	12		4	
Not studied	N/A	1		13	4 (Brodo & Hawksworth 1977)	4	
Not studied	N/A	1	1	11	6 (Brodo & Hawksworth 1977)	4	
None	0			14		6	Should be 2

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S2S4	Inventory needed	*Psoroma hypnorum*	Not studied	N/A
S1S2	Inventory needed	*Ramalina almquistii*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Not studied	N/A	1	5			4	Should be 3
Scotter 18462, 12 July 1972, Banks Island, Sachs Harbour, 71deg 59'N 125deg 16'W, Dryas hillsides and lowland community types, 100-200 m elev; Scotter 33274, 31 July 1979, vicinity of Bathurst Inlet, 67deg 42'N 107deg 63'W, Carex-Salix community near Baychimo[?]; A.E. Porsild s.n., 24-28 July 1927, Arctic coast, six miles east of Kittigarnuit, about 69deg 20'N 133deg W; D. Tannheiser 265, 1973, Banks Island, Johnson Point; A.E. Porsild s.n., 15-16 August 1927, Arctic coast, Liverpool Bay, Nicholson Island, *ca.* 70deg N 129deg W	5		1		2 (Thomson & Scotter 1983)	2	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S2S3	Probably overlooked	*Ramalina dilacerata*	C.D. Bird 27639, 10 June 1971, 70 mi WNW of Norman Wells, Sans Sault Rapids, island in the Mackenzie River, 65deg 50'N 129deg 00'W, elev., 200 ft., site 54, *Picea glauca* - Salix woods, on *Picea glauca*, 10 June, 1971; C.D. Bird 31916, 11 July 1972, Wrigley, Hodgson Creek, glaciated area, 63deg 13'N 123deg 29'W, elev. 400 ft., aspect NE 10deg, Picea mariana - *Larix laricina* community, Site 65, on *Picea mariana*; C.D. Bird 34860, 1 August 1978, Mountain River, 11 mi below mouth of Cayna River, 65 deg 25'N, 129deg 09'W, elev 150 m, SW-facing valley slope, on *Betula papyrifera*; label only: C.D. Bird 31694, 11 July 1972, Wrigley, glaciated area 63deg 13'N 123(?) deg 37'W, elev 300 ft., aspect 0deg, *Populus tremuloides*, (up to 5" dbh) community on sandy soil in formerly burned area, Site 62, on *Alnus crispa*; CD Bird 31736, 11 July 1973, Wrigley, glaciate area, 63deg 13'N, 123deg 37'W, elev 500 ft, aspect 0deg, *Populus tremuloides*, (up to 5" dia), community on sandy soil in formerly burned area, Site 62, on *Salix sp.*; C.D. Bird 31915 (? photo fuzzy), 11 July, 1972, Wrigley, Hodgson Creek, glaciated area, 63deg 13'N, 123deg 20'W, elev 400 ft., aspect NE 10deg, *Picea mariana-Larix laricina* community, Site 53, on *Picea mariana*; C.D. Bird 27454, 8 June 1971, 70 mi WSW of Norman Wells, 5 mi SW of the junction of the Mountain and Mackenzie Rivers, 65deg 38'N 128deg 59'W, elev. 300 ft., Site 45, *Picea mariana* woods, on *Picea mariana*, 8 June 1971; A.H. Marsh 5936, 24 July 1975, Rabbitkettle Lake, 61deg 57'15"N, 127deg 12'20"W, elevation 670 m, floodplain mature *Picea glauca* forest on *Picea glauca*	8
SNA	Not likely	*Ramalina fastigiata*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0	1	1			3	
None	0					Not assessed	Should be 6

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S2S3	Specimens should be reviewed, inventory needed	*Ramalina intermedia*	No specimens	0
S1S2	Inventory needed	*Ramalina obtusata*	C.D. Bird 31916, 11 July 1972, Wrigley, Hodgson Crek, glaciated area, 63deg 13'N, 123deg 29'W, elev, 400ft., aspect NE 10deg, *Picea mariana - Larix laricina* community, Site 69, on *Picea mariana*; C.D. Bird 27381, 7 June 1971, 65 mi WNW of Norman Wells, Sans Sault Rapid, 65deg 40'N 128deg 50'W, elev. 213 ft., Site 42, stunted *Picea glauca* woods, on *Picea glauca*; C.D. Bird 34850, 1 August 1978, Mountain River, 1 mi below mouth of Cayne River, 69deg 25'N 126 deg 09'W (? fuzzy photo, may be incorrect, check against other specimens from this locxxx), elev. 150 m, SW-facing valley slope, on *Picea glauca*	3
S1S2	Inventory needed	*Ramalina pollinaria*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1964 (maps)	Other literature	Marsh GS rankings	Comments on GS
P.Y. Wong 1166, 25 June 1973, Carlie Lake, 60deg 02'N 110deg 40'W, along shore with spruce and tamarack; Scotter 1551, 23 June 1961, S. Blackford Lake, 62deg 12'N 113deg 30'W, det. Bowler; Scotter 2514, 15 August 1962, on rock, Thekulthili Lake, 61deg 12'N 110deg 00'W, det. Bowler; Scotter 3785, 18 August 1961, on shaded part of granite rock, upper Ross Lake, 62deg 02'N 113deg 15'W, det. Bowler;	4		1	6		3	
Thomson 15574, 13 June 1964, on twigs at base of a spruce on top of cliff, Inuvik, 68deg 20'N 133deg 45'W; Scotter 8281, 19 July 1966, Mackenzie Delta, S-51, Little Gull River, 68deg 10'N 133deg 46'W, rock outcrop, det. Bowler;	2		1	1		2	
None	0	1				2	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S2	Specimens should be checked for species concept, inventory needed	*Ramalina roesleri*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
A.A. Lindsey 737, 19 August 1951, Mackenzie River Valley, Aklavik, on branchlets and bark of dead lower limbs of white spruce in open stand on channel bank across from town, moss and heath shrub below spruce; Scotter 2400, 26 July 1962, East Hjalmer Lake, 61deg 35'N 109deg 25'W;	2	1		2		2	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S2S3	Possibly overlooked, inventory needed, specimens should be reviewed for species concept	*Ramalina sinensis*	All verified as Ramalina sinensis by Scott LaGreca 2007: A.H. marsh 4225, 4 June 1972, Fort Simpson, near SW side of Island, closed, mature *Populus balsamifera - Picea glauca* stand at edge of small channel through the island; on *Picea glauca*, 61deg 51'40"N 121deg 22'30"W, elev 425 ft.; A.H. Marsh 4216, 4 June 1972, Fort Simpson, near SW side of Island, closed, mature *Populus balsamifera - Picea glauca* stand at edge of small channel through the island; on *Picea glauca*, 61deg 51'40"N 121deg 22'30"W, elev 425 ft.; A.H. Marsh 4286, 18 June 1972, Wrigley, 1/4 mi E of Mackenzie River, 63deg 13'30"N, 123deg 27'00"W, elev 400 ft., mature *Pinus divaricata - Populus tremuloides* with occasional *Betula papyrifera*, varying to *Pinus divaricata - Betula papyrifera*, *Pinus divaricata* to 7" dbh, ht 50ft., dense understory of Alnus to 10 ft., on dead Salix; A.H. Marsh, 4233, Fort Simpson, , near SW side of Island, closed, mature *Populus balsamifera - Picea glauca* stand at edge of small channel through the island; on *Picea glauca*, 61deg 51'40"N 121deg 22'30"W, elev 425 ft., on dead Salix; A.H. Marsh 4201, Fort Simpson, near SE side of Island, stand of large, overmature *Populus balsamifera*, on *Populus balsamifera*; on *Picea glauca*, 61deg 51'N 121deg 20'30"W, elev 425 ft., on *Populus baslamifera*; [THE FOLLOWING WERE IDENTIFIED BY EILEEN WYLIE 1977]: C.D. Bird 27640, 10 June 1971, Sans Sault Rapids, island in the Mackenzie River 65deg 50'N 129deg 00'W, elev 200 ft. Site 54, *Picea glacua* - Salix woods, on *Picea glauca*, 10 June 1971; C.D. Bird 31915, 11 July 1972, Wrigley, Hodgson Creek, glaciated area, 63deg 13'N 123deg 29'W, elev 400 ft., aspect NE 10deg *Picea mariana - Larix laricina* community, Site 65, on *Picea mariana*, 11 July 1972; C.D. Bird 27381, 7 June 1971, 65 mi WNW of Norman Wells, Sans Sault Rapids, 65deg 40'N 128deg 50'W, elev 213 ft., site 42, stunted *Picea glauca* woods, on *Picea glauca*, 7 June 1971; C.D. Bird 27639, 10 June 1971, 70 mi WNW of Norman Wells, ca 5 miles NW of Sans Sault Rapids, island in the Mackenzie River 65deg 50'N, 129deg 00'W, elev 200 ft., site 54, *Picea glauca* - Salix woods, on *Picea glauca*, 10 June 1971; [four more specimens, probably not rare]xxx	9
S1S2	Possibly overlooked, inventory needed	*Rhizoplaca chrysoleuca*	C.D. Bird 30869, 8 July 1972, Franklin Mountains, McConnell Range, 9 mi S of the summit of Cap Mountain, glaciated area, 63deg 17'N 123deg 13'W elev 3200 ft., aspect 0deg, large granite erratic (3 x 4 x 3') on ridge, site 44, on granite	1

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0		5			3	
Thomson 11250, 10 July 1962, Great Slave lake, vicinity of Fort Reliance, 62deg 45'N 106deg 35'W, on rocks at point of island, east side of lake;	1					2	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Inventory needed	*Rhizoplaca melanophthalma*	J.W. Thomson, 15493, 30 July-5 August 1963, south end of Dubawnt Lake, 62deg 43'N 101deg 30'W, on boulder on top of hill, west side of lake; [possibly wrong, poor specimen, cannot be identified: Scotter 2589, 16 August 1962, on rock, Thekulthili Lake, 110deg 00'N 61deg 12'W]; [Incorrectly identified, this is just *Lecanora muralis* group: A.H. Marsh 5807, 5 August 1975, Rabbitkettle Hot Springs, 61deg 56' 15"N 127deg 10' 40"W, elev 670 m, steep, N-facing Elymus grassland, on erratic granite boulder]; [Incorrect, this is just *Lecanora muralis* group!: Scotter 2591, 16 August 1962, on rock, Thekulthili Lake, 110deg 00'N 61deg 21'W.]	1
SNA	Possible, but no evidence	*Santessoniella arctophila*	Possible specimen, but poor & scrappy, cannot be identified confidently: Scotter 19498B, 26 July 1972, alpine communities with an occasional group of spruce trees surrounding Goz Lake, Bonnet Plume Range, 4000 ft. elev., 64deg 31'N 132deg 21'W	1?
S1	Inventory needed; calciphile in Arctic desert, probably not widely overlooked, regional endemic	*Seirophora aurantiaca (syn. Teloschistes arcticus)*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 30587, 22 July 1979, Banks Island, 74deg 14'N 121deg 03'W, 60-75 m elev., Papaver - Dryas community types; Scotter 2519, 15 August 1962, on rock, Thekulthili Lake, 61deg 12'N 110deg 00'W;	2				1 (Thomson & Scotter 1983)	3	Should be 2
None, though some possible misidentifications of other meso-gels may be this; these requested on loan to UBC for study	0					6	
Scotter 18482, 12 July 1972, NT: District of Franklin, Banks Island, Sachs Harbour, 71deg 59'N 125deg 16'W, Dryas community types and ridges, 200-250 ft. elev.; Scotter 1-26449 and 1-26449D, 15 July 1978, NT, Cape Parry area, polar semi-desert and seepage areas near Pin Main Dewline station, 70deg 11'N 124deg 42'W, 0-75 msm; M. Kuc s.n., (or AG-8?), 25 July 1968, SW Banks Island, Masik River, 30 km from coast, 71deg 36'N 123deg 00'W, dry tundra;	7			4		2	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1	Inventory needed; calciphile in Arctic desert, probably not widely overlooked, regional endemic	*Seirophora contortuplicatus*	No specimens	0
S1S2	Inventory needed	*Siphula ceratites*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 18649, 15 July 1972, Banks Island, Johnson Point, dry areas with Dryas and Salix communities, alt 25'; W. Chambers s.n. 13 July 1987, Victoria Island, Martha's Lake, 70deg 50'N 117deg 45'W, 200-300 ft. elev., calcareous soils, east exposure, gentle slope about 10 feet above the lake; Tannheiser 242, 1973, Banks Island, Johnson Point; T. Hutchinson 35, August 1975, Cape Parry, in area 100 meters, on the NE shore of Baleana Bay							
Scotter 8818, 3 August 1966, Campbell Lake, rock outcrop, 68deg 08'N 133deg 27'W;	1		1			2	
Scotter 33377, 1 August 1979, vicinity of Bathurst Inlet, 66deg 42'N 106deg 40'W, Ledum - Empetrum + Carex - Ledum community types	1			1	1 (Thomson & Scotter 1983)	2	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S2S4	Inventory needed, specimens should be checked for species concept, *Solorina monospora* should be considered	*Solorina bispora*	Not studied	N/A
S3S5		*Solorina crocea*	Not studied	N/A

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Not studied	N/A	1	4	12		4	Should be 3
Not studied	N/A	3	1	10		4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SNA	Possible, but no evidence	*Solorina octospora*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
S. Talbot T6110-35, 24 July 1976, Nahanni National Park, 61deg 29'N 109deg[sic] 28'W, 1745 m elev., alpine *Cassiope tetragona - Dryas integrifolia - Cetraria ericetorum* community; Scotter 30033, 20 July 1979, Banks Island, 73deg 30'N 120deg 20'W, Dryas - Potentilla and Carex community, 82 m elev.; S. Talbot T6043-30, 11 July 1976, Nahanni National Park, 61deg 35'N 126deg 14'W, 1350 m elev., subalpine *Betula glandulosa - Cassiope tetragona - Cladina arbuscula/mitis* community; S. Talbot T6149-25, 29 July 1976, Nahanni National Park, 61deg 52'N 127deg 29'W, 2100 m elev., alpine *Cassiope tetragona - Salix reticulata - Dryas integrifolia* community; Scotter 30018 and 30033, 20 July 1979, Banks Island, 73deg 30'N 120deg 20'W, Dryas-Potentilla and Carex community, 82 m elev.; S. Talbot T6110-35, 24 July 1976, Nahanni National Park, 61deg 29'N 109deg[sic] 28'W, 1745 m	6					6	
elev., alpine *Cassiope tetragona - Dryas integrifolia - Cetraria ericetorum* community;							

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S3S4	Specimens should be reviewed for species concept	*Solorina saccata*	Not studied	N/A
S2S3	Inventory needed	*Solorina spongiosa*	A.H. Marsh 5531, 15 July 1975, Rabbitkettle Lake, 61deg 57'15"N 127deg 13'00"W, elev 670 m, wet lake shore, Nahanni National Park, dupl det Ahti; (label only): C.D. Bird 34581, 29 June 1977, Mackenzie Mountains, Carcajou Range, junction of Powell Creek and west side tributary 60 mi W of Norman Wells, 65deg 16'N 128deg 47'W, elev 1000 ft, *Dryas drummondii* community on floodplain.	2

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Not studied	N/A	3	4	20		4	
Scotter 30181, 22 July 1979, Banks Island, near Mercy Bay, 73det 59'N 119deg 02'W, 10-15 m elev., Dryas-Draba community type; Scotter 30141, 21 July 1979, Banks Island, 73deg 59'N 118deg 57'W, 30-125 m elev., Dryas community type; Scotter 8430, 21 July 1966, Mackenzie Delta, S-59, Toker Point, 69deg 39'N 132deg 46'W, Carex-grass community; R. Sims 8128B, 20 July 1980, disturbed low shrub (Salix - Betula) heath near abandoned microwave towe site 80-10, at crest of hill above Reindeer Station, Mackenzie Delta's east channel, 68deg 40'40"N 134deg 07'45" W; Scotter 8431, 21 July 1966, Warren Point, Mackenzie Delta, 69deg 42'N 132deg 25'w, willow - *Dryas integrifolia* community with scattered snowfield slopes; M. Kuc s.n. 25 July to 1 August 1968, valley of mesik River, SW Banks Island, bare, dry, funny place [*sic*]; A.E. Porsild	7		2	5		3	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S4S5	Inventory needed	*Sphaerophorus fragilis*	Not studied	N/A
S4S5		*Sphaerophorus globosus*	Not studied	N/A
S1S3	Possibly overlooked in the SW, grows on a wide variety of rock types in both forested and unforested habitats	*Spilonema revertens*	No specimens	0
S4S5		*Stereocaulon alpinum*	Not studied	N/A
S1S2	Specimens should be reviewed for species concept	*Stereocaulon arenarium*	No specimens	0
S2S3	Specimens should be reviewed for species concept	*Stereocaulon botryosum*	Kathy Reid KR 27, 19 July 1976, Fiona Lake, Somerset Island, 73deg 04'N 95deg 05'W, 210 m asl, W aspect 4-9%, sandy loam, imperfectly drained, colluvial slope (snowmelt community) with *Cetraria delisei* and *Cetraria cucullata*; Ordell Steen S-124, 10 August 1976, 6 mi W of Invincible Point, Melville Island, 90 m asl, S aspect 10-18%, sandy, moderately well drained, colluvial sandstone, with *Cetraria islandica* and *Alectoria ochroleuca*, 76deg 17'N 108deg 35'W.	2

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
17350, 2 and 3 August 1949, Victoria Island, head of Minto Inlet, alpine slope							
Many specimens	Numerous	1		3		3	
Not studied	N/A	1	8	20		4	
None	0	1				3	Should be 2
Not studied	N/A	6	9	36		4	
None	0		3	1	4 (Thomson & Scotter 1983)	2	
None	0		3	2		3	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S3	Inventory needed	*Stereocaulon condensatum*	C.D. Bird 33270, 28 June 1973, site 73-19, Prince Patrick Island, 1 mi SW of Landing Lake, 76deg 19'N 119deg 51'W, elev 300 ft, aspect 4deg E, gravel (silstone-ironstone-sandstone) barrens, *Rhacomitrium lanuginosum* community, cover +, on soil; C.D. Bird 33633, 2 July 1973, Prince Patrick Island, 5 mi SE of Landing Lake, 76deg 17'N 119deg 38'W, elev 200 ft., aspect 30deg E, poorly vegetated silstone gravel slope, cover +, on soil; C.D. Bird 32893, 26 June 1973, Prince Patrick Island, 1 mi S of Landing Lake, 76deg 19'N 119deg 47'W, elev 100 ft., aspect 5deg N 20x30 yard wide wet clay alluvial fan, *Gymnomitrion coralloides - Luzula confusa* community, Site 73-5, Cover 1%, on soil; C.D. Bird 33156, 30 June 1973, Prince Patrick Island, 1 mi S of Landing Lake, 76deg 19'N 119deg 46'W, elev 300 ft., aspect 5-10deg S, siltstone/clay ravine slope, *Luzula confusa - Rhacomitrium lanuginosum* community, Site 73-27, cover +, on soil	4
SNA	Possible, but no evidence	*Stereocaulon coniophyllum*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 8201, 16 July 1966, Mackenzie Delta, S-39, lichen community on polygons, North Caribou Lake, 68deg 07'N 132deg 43'W, det. Ahti; Scotter 3810, 19 August 1961, Ross Lake, 62deg 42'N 113deg 15'W, det. Thomson; Scotter 2639, 23 June 1962, sandy jack pine area, Gagnon Lake, 61deg 55'N 110deg 10'W, det. Lamb; Scotter 6013, 2 August 1965, T - 42, Reindeer Station, 68deg 37'N 134deg 01'W; Ahti 14674, 19 August 1961, Mackenzie District, Lower Ross Lake, 62deg 40'N 113deg 15'W, bare sand in 30 years old burned *Pinus banksiana* - lichen woodland; Scotter 8201, 16 July 1966, S-39, lichen community on polygons, North Caribou Lake, 68deg 07'N 132deg 43'W, det. Ahti; Scotter 2630, 26 July 1962, Hjalmer Lake, 61deg 35'N 109deg 25'W, det. Lamb; Scotter 3810, 19 August 1961, Ross Lake, 62deg 42'N 113deg 15'W;	8	1	3	5		3	
None	0					6	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Specimens should be checked to confirm occurrence	*Stereocaulon dactylophyllum*	No specimens	0
S2S4	Specimens should be reviewed for species concept	*Stereocaulon glareosum*	Not studied	N/A
S4	Specimens should be reviewed for species concept	*Stereocaulon grande*	No specimens	0
SU	Specimens should be checked to confirm occurrence	*Stereocaulon incrustatum*	No specimens	0
SU	Specimen should be reviewed for species concept	*Stereocaulon leprocephalum*	No specimens	0
S4S5		*Stereocaulon paschale*	Not studied	N/A
S3S4		*Stereocaulon rivulorum*	Not studied	N/A

CANL	Number CANL	Thomson *et al*. 1989[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0			1		5	
Not studied	N/A	1	3	5		4	Should be 3
Specimens need review	Numerous			8		5	Should be 4
D.B.O. Savile 4103, 19 June 1960, Isachsen 1 mi. south of station, 78deg 46'N 103deg 33'W, det. Lamb "determination somewhat doubtful"	1			1		5	
None	0				1 (Thomson & Scotter 1983)	5	
Not studied	N/A	12	4	30		4	
Not studied	N/A	3	7	18		4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Specimens should be checked to confirm occurrence	*Stereocaulon saxatile*	No specimens	0
SU	Specimens should be checked to confirm occurrence	*Stereocaulon symphycheilum*	No specimens	0
S5		*Stereocaulon tomentosum*	Not studied	N/A
S1S3	Inventory needed	*Stereocaulon vesuvianum*	No specimens	0
S1S2	Inventory needed	*Sticta arctica*	No specimens	0

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Thomson 11303, vicinity of Yellowknife, 62deg 30'N 113deg 12'W, 7 July 1962, on granite outcrop north of Yellowknife; W.J. Cody 16775, 27 July 1967, Mackenzie Mountains, 5 miles SE O'Grady Lake, 62deg 57'N 128deg 58'W, 5,000-6,000 ft. elev., on granitic rocks; W.J. Cody 17396, 3 August 1967, Mackenzie Mountains, middle slope of north side of Sekwin Mountain, south of June Lake, 63deg 30'N 128deg 40'W, 4000-5000 ft. elev., among rocks in wet area in saddle, limestone formation; W.J. Cody 16819, 28 July 1967, Mackenzie Mountains, 6 mi NE O'Grady Lake, 63deg 03'N 128deg 55'W, 5,000-5,500 ft., in moss over black shale;	4	1		6		5	
Specimens missing?	0				2 (Thomson & Scotter 1983)	5	
Not studied	N/A	6	6	27		4	
None	0			1		3	Should be 2
None	0			1	1 (Thomson & Scotter 1983)	2	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S5		*Thamnolia vermicularis sensu lato*	Not studied	N/A
S1S2	Inventory needed	*Tholurna dissimilis*	No specimens	0
S3S5	Possibly underreported in the south	*Tuckermannopsis americana*	Not studied	N/A
S1S3	Inventory needed	*Tuckermannopsis chlorophylla*	No specimens	0
S1S2	Very little suitable habitat, periferal, inventory needed	*Tuckermannopsis platyphylla*	No specimens	0

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Not studied	N/A	3	5	53		4	
Ahti 32767, 11 July 1977, Mackenzie Mountains, Nahanni National Park, Tlogotsho Plateau, 1350 m elev., 61deg 08'N 124deg 33'W, mountain valley with a lake and scattered stunted conifer scrub (orohemiarctic zone), on upper stem of 3 m tall *Abies lasiocarpa* at timberline, very abundant (but local); R. Rosie 44, 30 October 1977, Howards Pass, 62deg 27'N 129deg 12'W, 1535 m elev., on twigs and bark of *Abies lasiocarpa*;	2				2 (Otto 1983, The Bryologist 86: 263-265)	2	
Not studied	N/A	11		20		4	
None	0			1		3	Should be 2
None	0				Close in YT	2	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Possibly misapplied	*Umbilicaria americana*	No specimens	0
S1S2	Inventory needed	*Umbilicaria angulata*	No specimens	0
S2S3	Inventory needed; specimens should be checked	*Umbilicaria arctica*	J.W. Thomson 12454 is incorrectly identified as this, it is *Umbilicaria hyperborea* instead; correct: Scotter 5627, 14 July 1965, east side of Anderson River, 69deg 20'N 128deg 15'W, dupl det Ahti	1
S1S2	Inventory needed; specimens should be reviewed for species concept	*Umbilicaria cinereorufescens*	L.V. Hills 74-35, 8 August 1974, Liard Range, Yohin Ridge, Jackfish Gap 61deg 03'N 123deg 59'W, elev 2000-2500 ft, on rock	1
S3S4	Probably underreported	*Umbilicaria cylindrica*	Not studied	N/A

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 1602, 8 July 1961, W. C. Desperation Lake, 62deg 35'N 112deg 15'W, rock wall; Scotter 1472, 17 June 1961, south end of Hearne Lake, 62deg 20'N 113deg 08'W; Scotter 2420, 26 July 1962, fourty-seven year old black spruce type stand, east Hjalmer Lake, 61deg 35'N 109deg 25'W;	3					5	Should be 2
None	0			1		2	
None	0		1	6		3	
None	0			1		2	
Not studied	N/A			5		4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Inventory needed; one record very close in NU	*Umbilicaria decussata*	C.D. Bird 33124, 27 June 1973, Prince Patrick Island, 2 mi SE of Landing Lake, 76deg 19'N 119deg 44'W, elev 250 ft., aspect 0-50deg N, siltstone outcrop, *Lecanora rupicola - Rhizocarpon geographicum* community, site 73-14, cover 2%, on siltstone; NU?: C.D. Bird 33224, 28 June 1973, Prince Patrick Island, 1.5 mi W of Landing Lake, 76deg 19'N 119deg 43'W, elev 300 ft., aspect 0deg, animal enrichment site on siltstone-quartzite-ironstone outcrop overlooking valley, *Sporastatia testudinea - Rhizocaron macrosporum - Rhizocarpon geographicum* community, Site 73deg 17'N, Cover +, on quartzite;	2
S3S4	The few records are widespread, possibly underreported	*Umbilicaria deusta*	Not studied	N/A
S1S3	Inventory needed	*Umbilicaria havaasii*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
C.D. Bird 33057, 27 June 1973, Prince Patrick Island, 1 1/2 miles SE of Landing Lake, 76deg 19'N 119deg 44'W, 250 ft. elev., aspect 10-60deg S, siltstone outcrop, *Lecanora rupicola* community, site 73-12, cover +, on siltsone; C.D. Bird 33124, 27 June 1973, Prince Patrick Island, 2 miles SE of Landing Lake, 76deg 19'N 119deg 44'W, 250 ft. elev. aspect 0-50deg N, siltstone outcrop, *Lecanora rupicola* + *Rhizocarpon geographicum* community, Site 73-14, Cover 2%, on siltstone;	2				1 (Thomson & Scotter 1983)	3	Should be 2
Not studied	N/A	6		12	1 (Llano 1950); 4 (Thomson & Scotter 1983)	4	
Scotter 1-26416 and 1-26417, 15 July 1978, Cape Perry area, polar semi-desert and seepage areas near Pin Main Dewline Station, 70deg 11'N 124deg 42'W, 0-75 m elev.;	1			2	1 (Thomson & Scotter 1983)	3	Should be 2

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S2	Inventory needed	*Umbilicaria hirsuta*	Scotter 1995, 17 August 1961, rock face, central Ross Lake 62deg 42'N 113deg 15'W	1
S5		*Umbilicaria hyperborea*	Not studied	N/A
S1	Inventory needed	*Umbilicaria kraschenninnikovii*	NU?: P Skydt 19, on boulder, fault plateau, east of Sabine Bay, 75deg 37'N 108deg 00'W, 5 August 1968	1
SNA	Possible	*Umbilicaria leiocarpa*	No specimens	0
S1S3	Inventory needed, possibly underreported	*Umbilicaria lyngei*	No specimens	0
S1S2	Inventory needed	*Umbilicaria mammulata*	No specimens	0
S3S4		*Umbilicaria muhlenbergii*	Not studied	N/A
S1S3	Specimens should be checked for species concept	*Umbilicaria phaea*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 1995, 17 August 1961, rock face, central Ross Lake, 62deg 42'N 113deg 15'W; Ahti 14521, 17 August 1961, Middle Ross Lake, 62deg 40'N 113deg 15'W, on slightly eutrophic rock outcrop	2	2		1		2	
Not studied	N/A	5	3	23	1 (Llano 1950)	4	
No correctly identified specimens	0	3		2		3	Should be 2
None	0					6	
Scotter 18486, 12 July 1972, Banks Island, Sachs Harbour, 71deg 59'N 125deg 16'W, Dryas community types and ridges, 200-250 ft. elev.; Scotter 30277 and 30281, 20 July 1979, Banks Island, 71deg 06'N 122deg 46'W, near Nelson Head, 430-440 m elev., lichen-Draba, Dryas-Salix, and Carex community types; D. Harmsen s.n., 18-24 July 1989, Banks Island, close to confluence of Muskox and Thomsen Rivers, very dry, windswept hill top, on rock;	3			6	2 (Llano 1950); 1 (Thomson & Scotter 1983); 1 (Thomson & Scotter 1995)	3	Should be 2
None	0	2		2		2	
Not studied	N/A	10		16	3 (Llano 1950)	4	
None	0			1	2 (Llano 1950)	3	Should be 2

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S2S3	Inventory needed	*Umbilicaria polyphylla*	C.D. Bird 27300, 4 June 1971, Franklin Mountains, McConnell Range, 100 mi NE of Norman Wells, Mt. Clarke, 64deg 24'N, 114deg 12'W, elev 4000 ft., site 40, aspect S 30deg, Dryas community, on rock; C.D. Bird 31652, 10 July 1972, Franklin Mountains, McConnell Range, Cap Mountain, glaciated area, 63deg 23'N 123deg 11'W, elev 4300 ft., aspect S 5-10deg, lichen community with large Mt. Clarke Formation sandstone blocks, Site 61, on sandstone	2
S1S2	Specimens should be checked for species concept	*Umbilicaria polyrrhiza*	No specimens	0
S3S4		*Umbilicaria proboscidea*	Not studied	N/A
S3S4		*Umbilicaria rigida*	Not studied	N/A
S3S5	Possibly underreported	*Umbilicaria torrefacta*	Not studied	N/A
S3S4		*Umbilicaria vellea*	Not studied	N/A
S1S3	Inventory needed	*Umbilicaria virginis*	Correct: C.D. Bird 33635, 2 July 1973, Site 73-31, Prince Patrick Island, 5 mi SE of Landing Lake, 76deg 17'N, 119deg 38'W, elev 200 ft., aspect 30deg E, poorly vegetated silstone gravel slope (is this NU instead?xxx); (probably incorrect, looks like *Umbilicaria cylindrica* instead): C.D. Bird 34303, 27 June 1977, Mackenzie Mountains, Carcajou Range, above Virgin Creek, 48mi W of Norman Wells, 65deg 11'N 128deg 29'W, elev 4000 ft., sandstone patterned ground on exposed ridge, on rock.	1

CANL	Number CANL	Thomson *et al*. 1969[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0			4		3	
None	0			1		2	
Not studied	N/A	1	3	16		4	
Not studied	N/A			8		4	
Not studied	N/A		4	12		4	
Not studied	N/A	8		12	1 (Llano 1950); 2 (Poelt & Nash 1993)	4	
Sterling s.n., 15 August 1971, Banks Island, 71deg 11'N 122deg 46'W;	1			4	1 (Thomson & Scotter 1995); 1 (Thomson & Scotter 1983)	3	Should be 2

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S2	Inventory needed	*Usnea cavernosa*	C.D. Bird 27383, 7 June 1971, 65 mi WNW of Norman Wells, San Sault Rapids, 65deg 40'N 128deg 50'W, elev 213 ft., site 42, stunted *Picea glauca* woods, on *Picea glauca*.	1
SU	Specimens should be checked for species concept	*Usnea filipendula*	No specimens	0
SU	Specimens should be checked for species concept	*Usnea glabrata*	No specimens	0
SU	Specimens should be checked for species concept	*Usnea glabrescens*	No specimens	0

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
L.C. Raup 3203, July 1939, Brintnell Lake, bottom of talus near base of Cathedral Mt., hanging on spruce tree, very common, 62deg 5'N 127deg 35'W, det. LaGreca 2001; W.W. Jeffrey 94, 7 July 1959, Mackenzie Lowlands, Liard River Valley, on fallen white spruce, just north of confluence of Liard River and Kotaneelee River, det. Herre, and later J.A. Malachowski;	2			2		2	
Scotter 2319, 14 July 1962, on white spruce, South Taltson River, 61deg 26'N 112deg 44'W; A.E. Porsild s.n., 7-11 June 1928, Great Bear Lake, foot of Dease Arm, near the mouth of Dease River, 66deg 53'N 118deg 36'W;	2	2		1		5	
W.J. Cody 18665, 4 July 1970, Mackenzie District, small unnamed lake on south side of Horn Plateau, 61deg 59'N 119deg 22'W, on dead *Picea glauca*;	1		3			5	
Scotter 5513, 6 July 1965, S-5, confluence of Carnwath and Anderson Rivers, 68deg 23'N 128deg 50'W, det. Ahti	1	10				5	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Specimens should be reviewed for species concept, inventory needed	*Usnea hirta*	Two misidentified specimens, one correct. Scotter 2595, Thekulthili Lake, 110deg 00'N 61deg 12'W, 16 August 1962, on *Pinus banksiana*	1
SU	Probably underreported, at least in the SW	*Usnea lapponica*	No specimens	0
SU	Specimen should be checked for species concept	*Usnea plicata xxx*	No specimens	0
S3S4	Possibly overlooked	*Usnea scabrata*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
Scotter 2595, 16 August 1962, Thekulthili Lake, 61deg 12'N 110dedg 00'W, on *Pinus banksiana*; Scotter 2480, 14 August 1962, Thekulthili Lake, 61deg 12'N 110deg 00'W, on *Betula papyrifera*;	2	5		5		3	Should be 2
None	0	3	9			5	
None	0					Not assessed	
Not studied	N/A	2		7		4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S2	Inventory needed	*Usnea sphacelata*	Bird 33653, 2 July 1973, Prince Patrick Island, 5 mi SE of Landing Lake, 76deg 17'N 119deg 38'W, elev. 200 ft., aspect 20deg, sandstone felsenmeer, *Rhacomitrium lanuginosum - Rhizocarpon geographicum* community, Site 73-32, Cover +, on sandstone (specimen photod); M. Kuc LE-3, 14 June, 1968, NWT or NU: Melville Island, on sand dune, Purchase Valley, Arctic Archepelago (photod specimen);	2

CANL	Number CANL	Thomson *et al.* 1969[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
S.A. Edlund, s.n., 2 July 1985, Melville Island, Hecla Bay, 75deg 30'N 114deg 05'W, in shallow depressions, on sandstone, site 150; C.D. Bird 33056, 27 June 1973, Prince Patrick Island, 1.5 mi SE of Landing Lake, 76deg 19'N 119deg 44'W, 250 ft. elev., aspect 10-60deg S, siltstone outcrop, *Lecanora rupicola* community, Site 73-12, cover +, on siltstone; G. Parker s.n., 19 July 1974, NWT? Melville Island, Baily Point, 74deg 58'N 115deg 02'W, talus slope or scree; S.A. Edlund s.n., Site 282-A, NT?, Melville Island, 75deg 27'N 115deg 17'W, on sandstone boulder; C.D. Bird 33653, 2 July 1973, Prince Patrick Island, 5 mi SE of Landing Lake, 76deg 17'N 119deg 38'W, elev., 200 ft., aspect 20deg S, sandstone felsenmeer, *Rhacomitrium lanuginosum - Rhizocarpon geographicum* community, Site 73-32, cover +, on sandstone; M. Kuc AN-2, 2-7 July 1968, Southern Eglinton Island,	7			3 or 4	1 (Thomson & Scotter 1995)	2	
vicinity of Decco Master, ca 76deg 45'N 118deg 30'W, tundra; M. Kuc L8-3, 14 June 1968, Melville Island, Purchase Valley, on sand dune;							

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SNA	Misapplied	*Usnea stuppea*	No specimens	0
SU	Specimens should be reviewed for species concept	*Usnea subfloridana*	No specimens	0
SU	Specimens should be reviewed, probably not rare	*Usnea substerilis*	No specimens	0
S1	Inventory needed	*Vestergrenopsis isidiata*	No specimens	0
S5		*Vulpicida pinastri*	Not studied	N/A
S4S5		*Vulpicida tilesii*	Not studied	N/A
S1S3	Inventory needed	*Xanthomendoza borealis*	No specimens	0
SU	Possibly misapplied	*Xanthomendoza fallax*	No specimens	0

CANL	Number CANL	Thomson *et al*. 1989[1]	Ahti *et al*. 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0					Not assessed	Should be 6
Disregard record of K.A. Kershaw, this is ON	0	9		7		5	
Three packets, but all look incorrectly identified	0	4		21		5	
None	0			1		2	
Not studied	N/A	12	4	40		4	
Not studied	N/A	1	3	38		4	
Banks Island, 74deg 14'N 121deg 03'W, 60-70 m elev., Papaver-Dryas community types, all det. Lindblom; Scotter 18639, 15 July 1972, Banks Island, Johnson Point, dry areas wih Dryas and Salix communities, 25 ft. elev., det. Lindblom; Scotter 30219, 30568, 30582, 30583, Banks Island, 74deg 14'N 121deg 03'W, 60-75 m elev., Papaver-Dryas community types, det. Lindblom (all 4); Scotter 18639, 15 July 1972, Banks Island, Johnson Point, dry areas with Dryas and Salix communities, 25 ft. elev., det. Lindblom;	4				4 (Lindblom 1997)	3	Should be 2
None	0	1				5	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
SU	Possibly common along the McKenzie River	*Xanthomendoza fulva*	No specimens	0
SU	Specimens should be checked for species concept	*Xanthomendoza ulophyllodes*	No specimens	0
SNA	Misapplied	*Xanthoparmelia chlorochroa*	No specimens	0
SU	Specimens should be checked for species concept	*Xanthoparmelia somloensis*	No specimens	0
SU	Specimens should be reviewed for species concept	*Xanthoparmelia taractica*	No specimens	0
S2S3	Possibly misapplied, specimens should be reviewed for species concept	*Xanthoparmelia wyomingica*	Numerous specimens, these requested on loan to UBC for closer study	<10?
S4		*Xanthoria candelaria*	Not studied	N/A
S4S5		*Xanthoria elegans*	Not studied	N/A

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1973[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0				2 (Lindblom 1997)	5	
W.J. Cody 11757, 28 July 1961, Fort Liard, 60deg 14'N 123deg 28'W, on *Betula papyrifera*, det. Lindblom	1				2 (Lindblom 1997)	5	
None, all specimens incorrectly identified, these = *Xanthoparmelia wyomingica*	0		4	3		3	Should be 6, all specimens seen, including those identified by Mason Hale, are clearly not X. chlorochroa
Specimens requested on loan, needs study	Uncertain					Not assessed	
Specimens requested on loan, needs study	Uncertain	8		12		Not assessed	
Appears to be locally common; accounts for records of X. chlorochroa; numerous specimens, these requested on loan to UBC for closer study	Numerous					2	Should be 3
Not studied	N/A	6	10	21	19 (Lindblom 1997)	4	
Not studied	N/A	4	8	36	9 (Lindblom 1997)	4	

Location details in Museums and Literature				
Preliminary Conservation Rank	Notes	Taxon	PMAE	Number PMAE
S1S3	Specimens should be checked for species concept	*Xanthoria polycarpa*	No specimens	0
S3S4	The few records are widespread, possibly underreported	*Xanthoria sorediata*	Not studied	N/A
S1S2	Inventory needed	*Zahlbrucknerella calcarea*	No specimens	0
1	Thomson, Scotter & Ahti, 1969 (Great Slave Lake study)			
2	given in Ahti *et al*. 1973 (Lichens of the Reindeer Preserve, Northwest Territories, Canada, The Bryologist 76: 48-76) (note: more than one collection is possible per locality, but these are disregarded here)			

CANL	Number CANL	Thomson *et al.* 1989[1]	Ahti *et al.* 1972[2]	Thomson 1984 (maps)	Other literature	Marsh GS rankings	Comments on GS
None	0			1	2 (Lindblom 1997)	3	Should be 2
Not studied	N/A	4	2	8	5 (Lindblom 1997)	4	
None	0	1	1	2		2	